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GENERAL INFORMATION

REGISTRATION: Registration will begin at 8:30 A.M., Monday, July 20, 1953. The registration desk will be located in the Promenade of the Mayflower Hotel. The convention registration fee will be $10.00 which will include the cost of the banquet. Registration fee for single days will be $1.00 and will include morning and afternoon sessions.

BADGES: All members, guests, and visitors will be required to wear the appropriate official convention badge for admission to the convention assembly room. Those attending single sessions will present an admission ticket for admission which will be supplied at the time of registration. All speakers on the program are requested to register at which time an appropriate official badge will be issued which will admit speakers to all sessions.

HOTEL RESERVATIONS: Ample hotel accommodations should be available at the headquarters hotel. Those attending the convention will find that the Mayflower Hotel will offer the best in accommodations and special convention rates are reasonable. Anyone without hotel accommodations may inquire at the registration desk.

ENTERTAINMENT: Washington offers much in the way of entertainment and interest for those attending the convention. The Social Committee will have information for members, guests and their families that will assist you in selecting activities and in sightseeing.

BANQUET: All members and guests attending the convention are invited to attend the banquet on Thursday night, July 23, 1953 at 7:00 P.M. The committee has been fortunate to secure the Honorable Walter H. Judd, Representative of the Fifth District of Minnesota as the key speaker. **Members** will obtain tickets at the time of registration as the cost of the banquet is included in the registration fee of $10.00 **Visitors** may obtain tickets at the registration desk.

COMMERCIAL EXHIBITS: Commercial exhibits will be located in the Chinese Room, immediately adjacent to the Ballroom where the sessions will be held. All those attending the meeting are urged to visit the commercial exhibits. A wide variety of rehabilitation equipment will be displayed and should be of considerable interest to those attending.

SCIENTIFIC EXHIBITS: The scientific exhibits will be located in the Pan American Room which is directly across the Promenade from the Chinese Room. There has been an excellent response reported by the Scientific Exhibit Committee and all attending should find these exhibits both interesting and informative. Demonstrations of Corrective Therapy techniques will be held daily in this same room. Additional information concerning these demonstrations will be found in the official program.

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Rehabilitation: Integrating Science and Service

MONDAY—July 20

Registration—8:30 a.m.—5:00 p.m.

Morning Session

8:30-10:30—Meeting, Executive Board, North Room

10:30-12:00—Meeting, Executive Board, Representative Assembly, North Room

12:00- 1:00—Lunch

Afternoon Session

1:00- 5:00—Meeting, Executive Board, Representative Assembly, North Room

2:00—Demonstration and Panel Discussion
Auditorium, Mt. Alto Veterans Administration Hospital, 2650 Wisconsin Ave., N.W., Washington, D.C.
"Reaching the Catatonic Patient," a demonstration by Paul Roland.
"The Problem of the Catatonic Patient," Harvey J. Tompkins, M.D., Chairman, Chief, Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.
"Behind the Catatonic Defense," Richard L. Jenkins, M.D., Chief, Research Section, Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.
"Demonstration of Corrective Therapy Techniques," Mr. Paul Roland, Chief, Corrective Therapist, Research and Training Unit and Mr. Edward Anderson, Corrective Therapist, Veterans Administration Hospital, Downey, Illinois.

(Admission to this session limited to professional personnel.)

Evening Session

7:30—General Assembly and Election of Officers. Ballroom Exhibits will be open preceding this meeting. All members are urged to visit the commercial exhibits to observe the latest in rehabilitation equipment.

TUESDAY—July 21

Registration—Promenade, 8:00 a.m.-5:00 p.m.

Morning Session

9:00-10:00—Exhibits, Chinese Room

10:00-11:00—Ballroom
Opening of Convention
General Chairman: Vice Admiral Ross T. McIntire, USN (MC) Rtd., Washington, D. C.
Invocation: Most Reverend Patrick A. O'Boyle, D.D., Archbishop of the Catholic Archdiocese of Washington
Welcome:
Representative—District of Columbia—to be announced
Dr. Herbert P. Ramsey, President, District of Columbia Medical Society
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Joseph H. VanSchoick, Executive Officer, Physical Medicine and Rehabilitation Division, Veterans Administration, Washington, D.C.
Linus A. Zink, M.D., Manager, Mt. Alto Veterans Administration Hospital, Washington, D.C.
Response: Mr. Thomas J. Fleming, President, Association for Physical and Mental Rehabilitation

11:00-12:00—Visit Exhibits
Commercial Exhibits—Chinese Room
Scientific Exhibits—Cabinet Room

12:00- 1:00—Lunch

Afternoon Session

1:00- 1:30—Visit Exhibits

1:30- 2:45—

PANEL DISCUSSION:
Rationale for Activity Therapy

"The Need for Conceptualization of the Activity Therapy Process as a Diagnostic Tool, Prognostic Aid and Treatment Method," A. B. C. Knudson, M.D., F.A.P.A., Chairman; Chief, Physical Medicine and Rehabilitation Division, Veterans Administration, Washington, D.C.
"Symbolic Activity as a Tool of Communication," Dexter Bullard, M.D., Med. Dir. Chestnut Lodge Inc., Rockville, Md.
"Activity in Relationship to Some Current Psychomotor Theory," Max Houtchens, Ph.D., Assistant Chief, Clinical Psychology Section, Psychiatry & Neurology Division, Veterans Administration, Washington, D.C.
"A Rationale for Activity in Physical Medicine and Rehabilitation," Daniel Danzig, Chief PMRS, VA, Northport, L. I.
"Some Basic Concepts Arising From Daily Working Relationships in Corrective Therapy," Arthur Landy, Chief, Corrective Therapy, Veterans Administration Hospital, Chillicothe, Ohio.

2:45-5:00—

PANEL DISCUSSION:
Rehabilitation of Patients with Spinal Cord Injuries

"General Introduction to the Specific Medical Problems Involved; The Treatment of Muscle Spasm," Donald Munro, M.D., Chairman; Surgeon-in-Chief, Department of Neurosurgery, Boston University School of Medicine; Assistant Professor of Neurosurgery, Harvard University Medical School.
"Urological Considerations in Spinal Cord Injuries," Herbert Talbot, M.D., Chief, Paraplegia and Urology Service, Veterans Administration Hospital, Framingham, Mass.
"Physical Medicine and Rehabilitation for Patients with Spinal Cord Injuries," Frjtz Friedland, M.D., Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Hospital, Boston, Mass.
"Demonstration—Bed Exercise, Mat Exercise, Self-Care and Ambulation Training," Mr. Frank Deyoe, Chief, Corrective Therapy, Veterans Administration Hospital, Framingham, Mass.
"Vocational Adjustment" Stanwood Hanson, Claims Vice-Chairman, The Liberty Mutual Insurance Company, Boston, Mass.

WEDNESDAY—July 22

Registration—Promenade, 8:00 a.m.-4:00 p.m.

Morning Session

8:30- 9:00—Exhibits, Chinese Room

9:00-10:30—

PANEL DISCUSSION:

Techniques for Normal Self Care Activities

General Chairman: William S. McEllroy, M.D., Dean University of Pittsburgh, School of Medicine and Surgery, Pittsburgh, Pa.

"The Challenge and Responsibility of Medicine to Assist the Home Bound and Bed Bound Patient through Direction of Specialized Training Procedures," Arthur S. Abramson, M.D., Chairman; Chief, Physical Medicine and Rehabilitation and Paraplegia Services, VA Hospital, Bronx, N.Y.; Assistant Clinical Professor, Physical Medicine and Rehabilitation, New York University; Clinical Professor, Physical Medicine and Rehabilitation, New York Medical College.

"Retraining the Neurological Patient in Daily Activities," Mr. Fred Rutan, Corrective Therapist, Dr. H. E. Gillette's Physical Medicine and Rehabilitation Clinic, Atlanta, Georgia.

"Reactivating and Sustaining Desirable Habit Patterns of the Regressed Mental Patient," Miss Margaret Hitt, Corrective Therapist, Veterans Administration Hospital, Murfreesboro, Tenn.

"The Activity Approach to the Retraining of the Blind," Mr. Howard E. Joy, Corrective Therapist, Veterans Administration Center, Wood, Wisc.

10:30-11:00—"Suggestions to the Corrective Therapist Involved in Scientific Inquiry, Research and Reporting," J. Q. Holsopple, Ph.D., Assistant Chief, Clinical Psychology Section, Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.

11:00-11:30—Demonstration, "A Maintenance Regime for the Severely Disabled Patient," Introduction and Rationale—A. Ray Dawson, M.D., Chief Physical Medicine and Rehabilitation Service, Veterans Administration Hospital, Richmond, Va. Demonstration—Mr. Paul Pastor, Corrective Therapist, VA Hospital, Richmond, Va.

11:30-12:00—"Research: A Distinct Responsibility of the Corrective Therapist in the GM&S Hospital," Mr. Paul Fleer, M.Ed., Chief, Corrective Therapy, Veterans Administration Hospital, Dublin, Ga.

12:00- 1:00—Lunch

Afternoon Session

1:00- 1:30—Visit Exhibits

1:30- 2:45—

PANEL DISCUSSION:

The Social Rehabilitation of the Patient

Chairman: Roger Cummings, Chief, Social Service, Veterans Administration, Washington, D.C.

"Treatment of Social Factors: The Current Social Work Approach," Mr. Robert J. Dacy, Chief Social Worker, Veterans Administration Hospital, Downey, Illinois.

"Joint Activity of Corrective Therapist and Social Worker in Fostering Patient's Progress," Mr. Harold Robinson, Chief, Corrective Therapy, Veterans Administration Hospital, Downey, Illinois.

"Return to the Community—Preserving the Patient's Treatment Gains," Mr. Sidney Hechter, Chief Social Worker, Regional Office, Veterans Administration, Brooklyn, N. Y.

"Medical Leadership and Responsibility in the Social Rehabilitation of the Patient," Irving J. Cohen, M.D., Manager, Veterans Administration Hospital, Baltimore, Md.

2:45- 3:15—Talk—Convention Theme

"Rehabilitation—Integrating Science and Service," J. T. Boone, Vice Admiral (M.C.) Navy, Retired, Chief Medical Director, Veterans Administration, Washington, D.C.

3:15- 3:30—Recess

3:30- 5:00—

PANEL DISCUSSION:

Theoretical and Observed Varieties of Motivation Towards Recovery

"An Introduction to the Dynamics of Motivation," John Whitehorn, M.D., Chairman; Psychiatrist-in-Chief, Henry Phipps Psychiatric Clinic, The Johns Hopkins Hospital, Baltimore, Md.

"From the Viewpoint of the Psychiatrist," Isadore Tuerk, M.D., Spring Grove State Hospital, Cantonsville, Md.

"From the Viewpoint of the Psychologist," Harold Hildreth, Ph.D., Chief, Clinical Psychology Section, Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.

"From the Viewpoint of the Corrective Therapist," Mr. Worth Randall, Chief, Corrective Therapy, Veterans Administration Center, Dayton, Ohio.

THURSDAY—July 23

Registration—Promenade, 8:00 a.m.-4:00 p.m.

Morning Session

8:30- 9:00—Exhibits, Chinese Room

9:00-10:15—

PANEL DISCUSSION:

Functional Ambulation for the Orthopedically Handicapped

General Chairman: Roy A. Wolford, M.D., Deputy Chief Med. Dir. Dept. of Medicine and Surgery, VA, Washington, D. C.

"General and Specific Ambulation Problems," John H. Aldes, M.D., Chairman; Director, Department of Physical Medicine and Rehabilitation, Cedars of Lebanon Hospital, Los Angeles, California.

"The Role of Physical Medicine and Rehabilitation in Treatment," Leslie Blau, M.D., Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Hospital, Buffalo, N. Y.

"Corrective Therapy Procedures in Functional Ambulation," Mr. Joseph Phillips, Chief, Corrective Therapy, Veterans Adminstration Center, Wadsworth, Kansas.

10:15-10:30—Recess

10:30-12:00—

PANEL DISCUSSION:

An Intensive Program of Corrective Therapy for the Psychiatric Unit of the General Hospital

"An Introduction to the Problem," Harvey J. Tompkins, M.D., Chairman; Chief, Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.

"Psychiatric Treatment Aims and Methods," Lucy Ozarin, M.D., Assistant Chief, Hospital Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.

"Neurological Treatment Aims and Methods," Benedict Nagler, M.D., Chief, Neuropsychiatry Service, Veterans Administration Hospital, Richmond, Virginia.

"Working with Psychiatric Patients through Corrective Therapy," Mr. Louis Mantovano, Chief, Corrective Therapy, Veterans Administration Hospital, Brooklyn, N. Y.

"Working with Neurological Patients through Corrective Therapy," Mr. Leo Berner, Chief, Corrective Therapy, Veterans Administration Hospital, Bronx, N.Y.

12:00- 1:00—Lunch

Afternoon Session

1:00- 1:30—Exhibits, Chinese Room

1:30- 2:30—

PANEL DISCUSSION:

Activity Therapy for the Regressed Psychotic Patient

"A Psychodynamic Interpretation of the Personality Structure of the Chronic Regressed Psychotic," Albert E. Dreyfus, M.D., Chairman; Veterans Administration Consultant in Psychiatry, VA Hospital, Perry Point, Md.; Instructor in Psychiatry, Johns Hopkins University Medical School, Baltimore, Md.

"Limitations of Contemporary Psychiatric Procedures for the Non-Verbal Regressed Psychotic," J. Arthur Waites, Ph.D., Chief, Clinical Psychology Department, Veterans Administration Hospital, Perry Point, Md.

"Application of Activity Therapy Techniques with Chronic Regressed Psychotics," Mr. Francis J. Marusak, Chief, Corrective Therapy, Veterans Administration Hospital, Perry Point, Md.

2:30- 3:15—"U. S. Army Reconditioning Program in Japan," Willis P. Denny, Capt. MSC, Chief, Physical Reconditioning, U. S. Army Hospital, Fort Jackson, South Carolina.

3:15- 3:30—Recess

3:30- 5:00—

PANEL DISCUSSION:

Rehabilitation of the Cerebral-Palsied Child

"Diagnostic Procedures and Treatment of Cerebral-Palsied Children," Winthrop Morgan Phelps, M.D., Chairman; Medical Director, Children's Rehabilitation Institute, Baltimore, Md.; Past President American Academy for Cerebral Palsy; Member, American Orthopedic Association.

"Specific Techniques as Performed by the Corrective Therapist," Kenneth Osinski, Corrective Therapist, The Walter D. Matheny School, Far Hills, N. J.

"General Considerations in the Rehabilitation of the Cerebral-Palsied Child," Mr. Walter D. Matheny, Director, The Walter D. Matheny School, Far Hills, N. J.

Evening—Convention Banquet—Room will be announced, 7:00 p.m.

Toastmaster—Thomas M. Arnett, M.D., Area Medical Director, Veterans Administration Regional Office, Washington, D. C.

Saying of Grace—Reuben R. Levine, Rabbi, Temple B'Nai Jacob, Washington, D.C.

Address—"The Human Story of Rehabilitation"
Honorable Walter H. Judd, M.D.
Representative of the Fifth District of Minnesota

Presentation of the John Eisele Davis Award

The Closing Prayer—Canon Gardner Monks, The Washington Cathedral, Washington, D.C.

FRIDAY—July 24

Registration—Promenade, 8:00 a.m.-2:00 p.m.

Morning Session

8:30- 9:00—Exhibits, Chinese Room

PANEL DISCUSSION:

Bridging the Gap Between the Hospital and the Community

General Chairman—(To be announced).

"Mobilizing All Potential Resources for the Return, Adjustment and Acceptance of the Patient into the Community," Leonard A. Scheele, M.D., Chairman; Surgeon General, U.S. Public Health Service, Washington, D.C.

"Mobilizing the Social Rehabilitation Potentials for the Return of the Patient to the Community," Edith M. Baker, Chief, Medical Social Worker Section, Children's Bureau, Department of Health, Education and Welfare, Washington, D.C.

"Psychological Factors and Their Significance in Bridging the Gap," Robert S. Waldrop, Ph.D., Chief, Vocational Counselling, Professional Services, Veterans Administration, Washington, D.C.

"Modern Industry's Answer," Kenneth E. Pohlmann, United Mine Workers Welfare Association, Welfare and Retirement Fund, Washington, D.C.

10:15-10:30—Recess

10:30-11:40—"Historical Development and Evaluation of Corrective Therapy," John Eisele Davis, Sc.D., Chief, Corrective Therapy, Veterans Administration, Washington, D.C.

Discussants:

A.B.C. Knudson, M.D., Chief, Physical Medicine and Rehabilitation Division, Veterans Administration, Washington, D.C.

Harvey J. Tompkins, M.D., Chief, Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.

11:40-12:00—"The American Legion and Veterans Rehabilitation," T. O. Kraabel, National Rehabilitation Commission, American Legion, Washington, D.C.

12:00- 1:00—Lunch

Afternoon Session

1:00- 1:30—Exhibits, Chinese Room

1:30- 2:45—

PANEL DISCUSSION:

Developmental Aspects of Curricula and Training in Corrective Therapy

Chairman: Jacob Meislin, M.D., Chief PMRS VAH, Montrise, N. Y.

Participants:

Josephine L. Rathbone, Ph.D., Associate Professor, Health and Physical Education, Teachers College, Columbia University, New York City, N. Y.

Karl K. Klein, Springfield College, Springfield, Mass.

Raymond A. Weiss, Association Professor of Education, School of Education, New York University, New York City, N. Y.

Robert E. Shelton, Department of Physical Education, University of Illinois, Urbana, Illinois.

Thomas J. Zwierlein, Assistant Chief, Corrective Therapy, Veterans Administration, Washington, D.C.

2:45- 3:45—Demonstration—"Current Progressive Developments of Prosthetic Appliances," Mr. Marshall A. Graham, Research Corrective Therapist, Research Division, College of Engineering, New York University, New York City, N. Y.

3:45- 5:00—

PANEL DISCUSSION:

The Role of the Hospital in the Preparation of the Patient for Living with Disabilities

"The Integration and Coordination of the Physical Medicine and Rehabilitation Services," Bernard Stoll, M.D., Chairman; Assistant Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Hospital, Bronx, N.Y.

"Neurological Factors and Their Effect Upon Treatment and Rehabilitation," Tiffany Lawyer, M.D., Chief, Neurology Section, Psychiatry and Neurology Division, Veterans Administration, Washington, D.C.

"Assisting Favorable Adjustment to Disability," Peter Napoli, Ph.D., Acting Chief, Vocational Counselling Service, Veterans Administration Hospital, Montrose, N. Y.

"An Exercise and Activity Approach to the Treatment of the Disabled," Mr. Hyman Wettstein, Assistant Chief, Corrective Therapy, Veterans Administration Hospital, Bronx, N. Y.

CORRECTIVE THERAPY CLINICAL DEMONSTRATIONS—PAN AMERICAN ROOM

Planned demonstrations of current Corrective Therapy exercise and activity techniques will be presented each day at 7:00 P.M. Visual aids and music will be employed. Topic will be announced daily.

Demonstrations under the direction of A. Ray Dawson, M.D., Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Hospital, Richmond, Va.

Participants: Mr. Sam Burchart, Chief, Corrective Therapy; Mr. Harlie Masters, Mr. Leroy McCallister, Mr. Clair Kaltreider, Mr. Paul Pastor, Corrective Therapists, VA Hospital, Richmond, Virginia.

SECTIONAL MEETINGS

Special arrangements have been made by the Convention Committee for medical and rehabilitation personnel in all specialties to hold sectional meetings. A tentative schedule is listed below. A representative of the various specialties may contact Mr. T. J. Zwierlein, Convention Co-Chairman, if any changes are desired. All meetings are scheduled for the Cabinet Room.

Tuesday, July 21, 1:30 p.m., Physical Therapists
Tuesday, July 21, 2:30 p.m., Occupational Therapists
Wednesday, July 22, 11:00 a.m., Clinical Psychologists
Wednesday, July 22, 1:30 p.m., Executive Assistants
Wednesday, July 22, 3:15 p.m., Social Workers
Thursday, July 23, 1:30 p.m., Educational Therapists
Thursday, July 23, 2:30 p.m., Manual Arts Therapists
Friday, July 24, 1:30 p.m., Vocational Counsellors
Friday, July 24, 2:30 p.m., Therapists for the Blind

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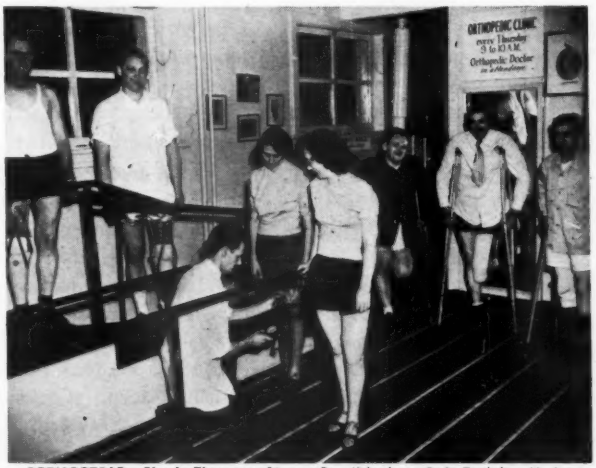

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CORRECTIVE THERAPY IN THE GENERAL HOSPITAL: SOME PRINCIPLES, SOME PROBLEMS, AND SOME PROPOSALS*

C. H. McCLOY, Ph.D.**

Because of the fact that this Association is so strongly rooted in the hospitals of the Veterans' Administration, I should probably begin by stating that this talk will have no especial relationship to Corrective Therapy in Veterans Administration facilities as such: I shall present my subject as applying to any general hospital in this (or any other) country, first as related to the possible contributions of exercise therapy to the welfare of the patient; second as related to the acceleration of convalescence of former patients; and third as related to the furthering of the welfare of any resident, ill or well, in our fair land.

I have elsewhere discussed the problems of Corrective Therapy for the normal person, hence, I shall simply present that reference and go on.[1]

Some Principles

Corrective therapy, or physical reconditioning or exercise therapy whichever one wants to call it, is really the offspring of the marriage of medical science and of physical education. This parentage in itself determines many of the principles which I shall take up here.

1. The first principle as I see it is that corrective therapy should be used for all those who are or should be under medical supervision only when *prescribed* by the attending physician. As a correlary of this, corrective therapy should not be practiced on anyone who is not known to be adequately sound, or conversely, on anyone who is known to have certain diseases or deficiences, *unless* it is conducted under adequate medical supervision. I cannot see any more reason, however, why corrective therapy should always be under medical supervision for the convelescent individual who has been discharged by the physician to a competent corrective therapist, or for the normal person wishing to train for better physical function, such as improvement in his strength or endurance, or for general well-being, than I can see a reason for all of the activities of gymnasium classes at the local YMCA or at my University being prescribed by a doctor. Let me repeat, however: programs of exercise *therapy* should not be prescribed (by the corrective therapist) for anyone who has not been cleared for exercise programs by a competent physician—but when so cleared, if the individual is well, he may be under the sole administrations of a competent and well trained corrective therapist.

2. Corrective therapy as such, as distinct from the usual programs of physical education generally, should emphasize.

(a) the prevention of deconditioning
(b) recondition, and
(c) the strengthening of weakened parts when such treatment is indicated by a physician. The fine line between, or the overlapping functions of, corrective therapy and physical therapy should, it would seem to me, be determined by the prescribing physician who is responsible for the case. As I see it there is no special magic in either corrective therapy or physical therapy. If some corrective therapists and some physical therapists whom I know have been able to learn these procedures, any intelligent person can learn them if given an adequate background and competent teachers.

When corrective therapists function outside of these limits in the direction of general exercise or sports and games for the normal person, they are no longer practicing corrective therapy as such—but physical education: a specialty in which they, as well as many physical therapists, have been trained.

In connection with the above two principles, it seems to be that it should be emphasized that the prescribing physician must learn enough about corrective therapy to prescribe it intelligently. In most private hospitals there is no physiatrist to assist in the direction of the program. I have gained the distinct impression that many physicians delay a decision to use corrective therapy for no reason except they have learned almost nothing about it and have postponed taking the time to learn. In this connection it seems to me that courses in physical medicine for physicians intending to specialize in this branch should markedly enlarge the unit given to the physiology of exercise and the unit given to the use of exercise as corrective therapy. This is usually one of the weaker units in the course. Further, it would seem to one like myself that the medical schools could well afford to devote at least a modest unit of time to corrective therapy, and that in preparation for this, departments of physiology in colleges of medicine should add a unit of physiology of exercise, going

*Read at the Sixth Annual Clinical and Scientific Conference of the Association for Physical and Mental Rehabilitation, Milwaukee, Wis., July 10, 1952.

**Director of Graduate Studies, State University of Iowa, Iowa City, Iowa.

considerably beyond what is currently taught in most colleges of medicine.

3. I have discussed corrective therapy or physical reconditioning with some physiatrists who have held that all corrective therapy must be individually adminstered, to one patient at a time. One such physiatrist closed the case, with the flat statement that, so far as he was concerned, any program of exercise therapy administered to more than one individual at a time "was not medicine." This statement I should like to challenge. Basically *all* therapy should be *for the best interests of the largest number of patients.* In the hospital whose physical reconditioning staff was under the physiatrist I have alluded to immediately above, about four hundred patients were under treatment—while a thousand more *should* have been under treatment, but this was impossible because the small physical reconditioning staff had to go around from bed to bed, to exercise each patient individually. Even when convelescents were well enough to go to the gymnasium for exercise, the physiatrist insisted that they be exercised one at a time! Even with the reconditioning staff working at full speed for long hours, the vast majority of the patients had to be neglected. There is a law of physics which states that work of one type is the product of the weight times the height to which it is lifted. Similarly, corrective therapy might be administered at a twenty percent level to one thousand patients, or with the same expenditure of time and effort at the hundred percent level to only two hundred patients. It would seem to me that each physiatrist needs to decide which is the more profitable procedure for the largest number of patients. In my own experience with army hospitals it proved exceedingly profitable to conduct a considerable amount of the physical reconditioning with *groups* of patients. I have seen half a ward of patients with similar disabilities exercised efficiently at one time by one physical reconditioning officer. I have seen a whole platoon of convalescents exercised at once, with adequate attention being given to individual adaptions. Just as we have group psychotherapy in many hospitals, due partly to the lack of an adequate number of psychiatrists, but due partly also to the beneficial results that accrue from the contact of patient with patient, so I believe that much group corrective therapy can be used to high advantage under indicated circumstances. I have not found that properly conducted group corrective therapy lowers the efficiency of the results to any marked degree. This should not be interpreted as indicating that I think that patients should never be exercised individually: many patients, particularly the recently operated and those from the medical wards recently cleared for corrective therapy *should* be exercised individually for some time.

4. Here follows a few principles having to do with corrective therapy as applied to surgical patients.

a. It should not be forgotten that for the surgical case who represents an ordinary operative patient (as in contradistinction to one who, for example, has been extensively smashed up in an automobile accident), there is nothing wrong with his body in general other than that he has had an incision made in it, has had some things removed or jointed together, and that he has been sewed up again. To make this clear let me consider an individual who has been operated on for a double inguinal hernia. With such a patient, if he is otherwise sound, there is nothing wrong with any part of him except his abdomen. The muscles of his neck, his arms, his back, his chest and his legs are sound, and there is no real reason, barring certain complications, why he should not engage in an active exercise program almost immediately. In my own case, with the full approval of my very progressive physician, I began a very strenuous exercise program on the afternoon of the day in which such an operation was performed. I "worked out" very vigorously twice a day after that—and at the end of three weeks got out of bed with no symptoms of dizziness or weakness, and was actually stronger than I had been before the operation. I would hasten to add that I did not begin abdominal exercises of any kind, even the most gentle, for the whole of the three weeks, but the well known transfer of effect from exercised muscles to non-exercised muscles kept the abdominal group from suffering any serious deterioration.

b. Many physicians hesitate to permit exercise in the case of an abdominal operation because of the fear that perhaps the viscera which have been operated on and sewed up may break loose. If normal precautions are observed, this is practically impossible if there is no necrosis. A British physician by the name of Paramore[2] has pointed out that any organ within the abdominal cavity is floating in a pool of other viscera of approximately the same specific gravity—all of them about ninety percent water. Let me propose an analogy. If I were to place a raw egg in a mason jar, put the cover on it and shake it vigorously, the egg would promptly break. If I were to put a raw egg in a mason jar and fill it brimful with water, put the cover on it, and shake it, it will prove to be impossible to break the egg. In the same way a viscus which has been cut and then mended is "foating" in a pool of other viscera, and with reasonable care it is almost impossible to injure it if the prescribed program of exercise is carefully planned for that condition. Such a program should of course not include exercises in which intra-thoracic and intra-adominal pressures have been raised (the glottis should be kept open, so that the individual can breath freely while exercising, and a posture emphasizing a straight trunk

should be maintained.) Nor should there be any jarring movement that might produce a water-hammer effect.

5. Some reconditioning or corrective therapy should be begun as early as practicable. This is particularly true with individuals who may be in some pain. Individuals who are in pain, particularly if under the influence of hypnotics or opiates, decondition much faster than those who are comfortable enough to squirm around a bit. This statement should not of course be interpreted as implying that a desperately ill idividual should be exercised. It does imply that many surgeons are unduly conservative and permit the patient to become deconditioned far too much and even to run the risk of embolism (which is associated with seven percent of the autopsies) when both could be avoided if the program had been started earlier. This is probably a good place for me to remind my listeners of my first principle: namely that *all* corrective therapy for *patients* should be *prescribed by the physician!* It is *not* a proposal for the corrective therapist to initiate the program without direction.

6. One of the difficult aspects of corrective therapy is this whole matter of prescription by the physician. Many times in the hospitals when I was helping to direct the program of physical reconditioning for the Army during the war, physicians and surgeons frankly stated that they knew nothing about exercise programs for patients and that they did not know how to prescribe them intelligently. They rightly hesitated to turn this over to a physical educator who had had only a six or eight weeks course in physical reconditioning. I should like to point out a practicable solution to this difficulty.

When I was studying medicine at John Hopkins Medical School, I was given a small medical formulary. In addition to numerous descriptions of methods of laboratory diagnosis, there was a large number of medical prescriptions. These had been prepared by the staff in internal medicine in cooperation, in all likelihood, with the staff in the field of pharmacology, and each prescription was agreed upon as being an adequately prepared prescription with the proper dosage of each drug correctly indicated. Generally in the clinic and in the hospital the physician desiring to prescribe one of these remedies simply prescribe it by letter or number or name. While he should of course know just how much of each drug should be included in each prescription, he did not *need* to remember it to write the correct prescription: he could have faith that it was correctly stated in the formulary.

In a similar way it has been profitable to prepare a formulary of exercise. I imagine that if I were to compare the old formulary that I had at John Hopkins in 1911 with the one that is used there now, that there would be found to have been great improvements made in the interim. Similarly when a formulary of exercise therapy has been prepared, there is no reason why improvements should not be made from time to time. Let me enlarge on this just a little more.

It happens that I was responsible for writing the Technical Manual 8-292, *Physical Reconditioning*, prepared for the Surgeon General of the Army during the recent war. Let me give you a little of its history.

First the exercises for bed patients, for ambulatory patients, and for the two classes of convalescents, were carefully prepared by well trained experts in the field of physical education. They were then demonstrated to and cleared with *numerous* physicians—never with only one. For example the exercises which were prepared for cardiac patients were cleared first with the cardiologists in the Office of the Surgeon-General, and then at their suggestion, with the cardiologists at Walter Reed Hospital. I then talked these exercises over with cardiologists at several other Army Hospitals. Experiments were then conducted with these programs—and the programs were revised as indicated.

All exercise programs for the various classes of patients had modifications made for those suffering various injurious. For example the routine of reconditioning exercises for bed patients had to be changed for individuals with an operated hip, for individuals with an operated abdomen, for those with an injured shoulder, etc. In most cases, however, not more than two exercises out of the series had to be changed—and they were automatically indicated for individuals with certain types of disabilities. Dosage was adapted to the individual.

The exercises which were termed the *remedial exercises* for those needing special strengthening of individual parts were likewise worked out with great care. The first edition of these was prepared by myself. They were then studied by an individual who had been a specialist in corrective exercises in the field of physical education and who was then a specialist in this area in the Department of Physical Therapy in the Office of the Surgeon-General. This individual proved to be most cooperative and she offered many constructive suggestions which were adopted.

The exercises were then discussed in detail with the colonel in charge of orthopedic surgery in the Office of the Surgeon-General. Later they were talked over with those in charge of orthopedic surgery at Walter Reed Hospital and finally with my chief, Dr. Augustus Thorndike, who was in charge of the Reconditioning Consultants Division of the Office of the Surgeon-General and who is himself an exceedingly competent orthopedic surgeon. Only exercises passing all of these experts were retained. In other

words a *formulary* of remedial exercises, adapted to specific conditions, was created, which could with confidence be prescribed by surgeons who knew relatively little of the prescription of exercise as such.

This will serve to introduce this whole idea of an exercise formulary. When such corrective therapy *formularies* have been prepared and approved, and when a considerable amount of experience has been gained by using them, and when they have been revised in accord with that experience, it would seem to me that the physiatrist and the general surgeon and the specialist in internal medicine might well make use of them with a considerable degree of confidence.

7. So much has been written and talked about the overload principle in the application of therapeutic exercise—and all other exercise so far as that is concerned—that it has almost become a subject too trite to discuss. I should like to make one comment which is usually not treated adequately in the discussions I have heard or read. While it is true that to improve strength or endurance, one needs to apply a load that is "over" the amount that has been carried recently, so that the demand may bring about an improvement, the method of doing this needs a little discussion. DeLorme and others[3] have well pointed out that to increase strength rapidly one needs several bouts of rather strenuous exercise. In patients who are ill—within limits imposed by a defective heart, which would be detected by the examining physician—the most effective way of applying the exercise (and the least dangerous) is to give a rather sharp overload followed by rest, rather than to continue a smaller dosage of exercise over a much longer period. For example, suppose I were to attempt to develop the muscles that flex my forearm (the biceps-brachialis group), if I were to use a one pound dumb-bell and flex my forearm repeatedly, I might do this until my arm ached and felt about to drop off—and I would have almost no increase in strength resulting. The reason is that I have much more than enough strength to handle a one pound dumb-bell. If however I were to use a 40 pound dumb-bell (I've experimented with this and know that this would be about right for me) and were to flex my foreame 8 or 10 times with that weight, and then rest, repeating the same dose of exercise three or four times after 3 to 5 minute intervals of rest—I would increase the strength of my muscles very rapidly within a relatively short time. Experiments in my laboratory have shown that exercises like the "ten-reptition-maximum" exercises of DeLorme, and others similar to that which I have devised on an experimental basis, will increase the strength of a given muscular group in normal men as much as eighty per cent within 8 to 10 weeks. In a few cases the strength has more than doubled. There is seldom less than an increase of sixty-five to seventy per cent. It is found that the weaker the muscle to begin with, the faster the strength increases.

This same principle applies to exercise of the heart that is, the exercise should be strenuous enough to cause the heart to beat for a short period with a considerable amount of force, followed by rest, rather than to get a very moderate increase in heart rate over a much longer period which would *tire* the heart basically very much more. With this kind of exercise there needs to be graded progression with adequately interspersed bodily relaxation and rest.

8. Numerous conditions require a type of exercise that raises the blood pressure very little indeed. For example an individual who has been suffering from a gastric ulcer that has been bleeding, or an individual with arterio-sclerosis should not have his blood pressure raised to any appreciable extent. This result can be accomplished and still exercise the individual muscle groups by proceeding almost muscle by muscle. For example an individual may exercise first only the muscles located in one forearm, then after a rest repeats this with his other forearm. After a further rest he exercises the muscles attached to one upper arm, etc. I mention this only because of the fact that some corrective physical educators and some physiatrists seem acquainted only with general exercises that use larger parts of the body.

9. While much of the above discussion has centered around the surgical patient, corrective therapy is equally valuable for medical patients. Here of course again the initiation of an exercise program must be determined by the prescribing physician. A great deal of experimentation, largely in the Air Corps during the late war, showed that after the sedimentation rate had returned to normal it was usually safe to begin graded exercise programs with medical patients. This of course would have to be modified in special cases such as rheumatic fever and other diseases which might temporarily—or for a long time so far as that is concerned—contra-indicate such exercise programs. In one such experiment conducted under the guidance of Col. Howard A. Rusk at the Jefferson Barracks Station Hospital near St. Louis, virus pneumonia casess not given such exercise spent an average of 45 days in the hospital and had a thirty per cent relapse rate. Those who were given an exercise program rapidly increasing in severity after the sedimentation rate had returned to normal spent an average of 31 days in the hospital and had only a three per cent relapse rate. The exercised patients had their lungs clear very much more rapidly than did those who were not exercised. Similar experiments were done on other medical conditions by that research group.

Some Problems and Some Proposals

1. How can the medical staffs of hospitals, and medical students generally, learn more about the use of exercise therapy and how to prescribe it? It would seem to me that there is need for the preparation of a relatively small volume or perhaps of more than one volume written for the physician, that tells of the essentials of corrective therapy. One of these volumes or a part of a larger volume should be concerned with the physiology of exercise for physicians and corrective therapists. The general principles of the therapeutic uses of exercise could very well also be presented and made available for the practicing physician or the medical student. In view of the fact that the average physician is reasonably well trained in basic physiology, in anatomy, and of course in surgery and medicine, it should not be too dificult for him to understand and thoroughly grasp the contents of such a treatise. I would also propose that a short course of this type be included in the courses in medical schools.

A second aid in this regard would be the preparation of the type of exercise formulary that I have indicated above. Materials for such a formulary are already at hand, although not all of this material is in print, and such materials could readily be revised from time to time.

2. How can the corrective therapist be better trained for competent cooperation with regard to surgical patients? I should propose here that there is the need for a text book on surgery as related to corrective therapy (and it would be equally valuable for the physical therapist) which is written from the standpoint of applied anatomy. For example in most chest operations the corrective therapist needs to know what the surgeon of course knows, namely, that about half of the trapezius, about the same proportion of the rhomboids, the whole latissimus dorsi, and several serrations of the serratus anterior have been severed. In addition the intercostals have been separated from one or more ribs and following the operation all of these muscles have been repaired. When the surgeon indicates that gentle exercise may be begun, the type of exercise that will be adapted to strengthening these muscles, gently applied at first, and followed up with increasing progression, needs to be indicated. Exercises to be contraindicated should also be stated. All of this of course is based on adequate knowledge upon the part of both surgeon and corrective therapist of applied anatomy and kinesiology. Such a handbook needs to be written for all operative procedures that are at all commonly used. Such a handbook would be of much use for the surgeon who is interested in corrective therapy as it would be for the corrective therapists themselves. Similar textbooks are needed for other aspects of the medical end of the corrective therapy program.

3. More study needs to be given to the problem of exercise for the cardiac patient. Exercise therapy for cardiac patients has gone a long ways since the old days of the hill-climbing Scott exercise therapy. The army's program for cardiac patients during the war was exceedingly successful where it wass tried under interested supervision, as was the case at England General Hospital at Atlantic City. Much more research needs to be done along these lines.

4. A great deal of experimentation needs to be done along the lines of exercise for the aging. This in a way is a type of postive geriatrics. Rather than simply fighting a delaying action with the diseases of old age, this would be an attempt to make actual progress in increasing the functional usefulness of the aging who were still medically adequately sound. I should like to propose for this program a term for exercise therapy corresponding to geriatrics in medicine, namely "eugeristics."

5. It would seem to me that we need more study of the problem of educating the average patient in what to do when he leaves the hospital in order to speed up his convalescence. This might take the form of several well illustrated but short bookletss. To a man in industry or even to a practicing physician days when the individual lies around home feeling too weak to go to work cost him money. In the case of industry it also costs the industrialists the services of their workers and with physicians it deprives the patients of the services of their chosen physicians as well. In the vast majority of the communities in this country no corrective therapists for either hospitals or convalescent facilities will be available for a number of years. It seems to me that this is a challenge to the medical practitioners and corrective therapists to prepare directions which would aid various classes of patients in hospitals to know what to do to speed up their convalescence upon returning home. This home program should continue to be conducted under the general direction of the physician where he deems it wise.

6. We need more study of the effects of exercise on the part or parts not being exercised. Recent work by Slater-Hammel[4] and others has indicated that exercise of one part contributes to the strengthening of parts not exercisesd. This is often found in corrective therapy programs for those who wear casts on one part, where the unexercised part in the cast progressses fairly satisfactorily when the rest of the body is adequately exercised. We need more studies along this line.

7. And since I am running out of time I must skip to my last problem and proposal, namely that of devising an adequate curriculum for the training of corrective therapists. Differences in the quality of

curricula are not unknown in colleges and departments responsible for many varieties of disciplines. Although the field of medicine has cleaned house in this respect most admirably, some differences in quality between medical schools still exist. In the field of physical education, upon which basic training corrective therapy is based, there is a most chaotic state so far as both quality and quantity of training is concerned. It is not in the least sufficient to certify that an individual "has graduated from a major course in physical education." Just as physical therapy and occupational therapy have had to standardize and indicate their course contents, so it would seem to me that corrective therapy must indicate the minimum course content that will be accepted as a basic major in physical education upon which to build the further specialty of corrective therapy. In my opinion, this curriculum should be much more specific than simply citing the names of specific courses. For example, a course in anatomy may in some schools be a very poor and very incomplete course of perhaps one and a half semester hours, taught by an incompetent teacher who knows little about anatomy. In another school it may be a four semester hour course, packed full of information, taught with the help of cadavers, and with an instructor who is an exceptionally fine teacher. Each will be labeled "a course in anatomy."

I have suggested to a committee of this Association which is studying this matter, that the curriculum should be based on a job analysis approach, where first a committee of physiatrists, surgeons, internists, geriatricians and corrective therapists would study not only what the corrective therapist *now* does, but what he *should be able to do* if he were adequately trained for the job and if the physicians in charge of the patients desired to get the most out of the corrective therapy modality that could be gotten. When it is known for what the individual *should* be trained, it should then be relatively easy—but not a short time job—to specify the individual items of information that should go to make up each course. Fortunately, such a course would be just as good for the physical education student who is not going into corrective therapy as it would be for the student of corrective therapy. This of course applies only to the courses that are common to both fields. The individual who prepares only to conduct gymnasium classess in a school or to coach athletic teams does not need to know the facts about surgery written for practitioners of corrective therapy.

To supplement the basic curriculum, it would seem to me that there is a vast need for well organized inservice training coursess to be given in the hospitals to the corrective therapy staff. It should be recognized that not all physicians are competent teachers (not all teachers are either!). It would therefore seem to me that it would be wise for someone who is expert in the formulation of well organized courses relating to scientific procedures to formulate in great detail the course contents of such in-service training courses, much after the fashion of good correspondence courses. This would present to the physician, or in some cases the head of corrective therapy who is himself well trained, a well organized program with adequate references, and where possible with text books, so that it would be difficult for an individual who is competent in his area but who is not an especially good teacher, to produce a poor in-service training course. It would seem to me further that a rather long series of such courses might well be prepared to the end that these might be rotated perhaps every three or four years so that the training of the corrective therapist might well be continued up into what would be a rather high grade graduate level and that he be kept up-to-date. I am not particularly concerned with how much credit is accumulated for such courses, though it might be wise in our credit-conscious educational world to assign such credit, but I am concerned that corrective therapy shall not stand still at a relatively low level. Much of this in-service training might be directed simply by the offering of reading outlines for discussion groups where questions could be asked and answered and issues discussed between the corrective therapists and the physicians concerned with pertinent specialties.

I return in closing to a statement that I made earlier in this talk: namely that the purpose of all therapy, medical, surgical, occupational, physical and corrective is to benefit the largest number of patients needing such treatments to the maximum degree. It would be my hope that much of the heat that has come to my attention, generated by disturbed proponents of this or that partisan belief might be harnessed by the intellectual machinery of all concerned and turned into light. Surely intelligent persons like the physicians with whom you work and the corrective therapistss themselves should be able to control their emotion and to use their intellects for the best interests of medicine for corrective therapy, and more important than either, for the ultimate consumer the patient.

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PHYSICAL EDUCATION AND RECREATION: A GRADUATE PROGRAM AT SPRINGFIELD COLLEGE

HARVEY E. WILLIAMS*

(Editor's Note: Lack of space prevented inclusion of this paper in the Education Number. The graduate program described is typical of those found in the eight (8) colleges and universities now training Corrective Therapists.)

In the development of Corrective Therapy as a profession, one of the most interesting and essential processes is that of developing educational curricula which can adequately prepare physical education personnel for their function on the rehabilitation team. In the last analysis, the key to the success or failure of the effort lies in the establishment of educational standards strong enough to survive the critical evaluation which it will inevitably receive. Committees representing several organizations are presently hard at work on this problem. Corrective therapists, in general, are acutely interested in what is being done to upgrade training standards to a higher professional level.

Because of this interest, it seems appropriate to describe in detail, a training program now in operation. Many colleges and universities throughout the country are offering course sequences of this nature but it would be futile to compare them since there are, as yet, no established and accepted criteria from which to judge. Rather, it would be more logical to report at this time one program as an example of what is being done. This may serve as encouraging information to those corrective therapists who have not had the opportunity ot keep up-to-date on educational trends and provide a basis for critical thinking in this very important phase of professional development.

There is justification in choosing the graduate program being conducted at Springfield College. In May of 1952, the Committee on Education of the Association for Physical and Mental Rehabilitation established a tentative outline entitled, "Essentials of Corrective Therapy Training." On the basis of this criterion, several programs were analyzed. Although there were many areas not covered by the Springfield sequence, it was found to rank very high in total coverage.

Historically speaking, the idea for the Springfield College program dates back to the days of World War II. Members of the post-war staff at the College, who had been in this work during the war, recognized the implications of the modern philosophy of rehabilitation and immediately started work to determine what physical education could do about it. An experimental graduate curriculum was established in September of 1947 and was given the name "Physical Education and Recreation in Rehabilitation." As nearly as can be determined, this was the first complete program of its kind ever to be offered by colleges in the United States. This pioneering effort proved worthy and, starting from a small class of five students the first year, now maintains a limited enrollment of thirty graduate students a year.

The wide variety of placement and the ease with which positions are found have exceeded expectation. The success the graduates of this major are having in their work, and the contribution they are making toward their profession, have been heartwarming. It provides tangible evidence that well-trained physical educators may serve a very real function in solving one of the greatest social problems of our time.

In presenting the program, it is necessary to point out that it is not a finished product. In no manner should it be considered an ideal one. Perhaps at no time will one school be able to offer adequate preparation in all of the areas in which corrective therapists are required to work. There are many obvious deficiencies in the courses shown below and it is advisable to point out that the Administration at Springfield College is carrying on a constant evaluation to eliminate shortcomings. The College invites suggestions and criticisms and is eagerly awaiting leadership through medicine and other allied professions. Within the realm of good educational practices and the philosophy of physical education, everything possible will be done to achieve the highest educational and professional standards.

In order that the student entering the program is prepared to realize full value from it, a strong undergraduate course prerequisite has been established. In addition to a Bachelor's Degree in Physical Education with a minimum of thirty-six semester hours of major work, along with methods courses and practice teaching experience, the applying student must also have adequate undergraduate courses in biology, anatomy, kinesiology, physiology and physiology of exercise, personal and mental hygiene, and psychology. Only by maintaining these high entrance requirements is it possible to keep the graduate courses at a truly advanced level.

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COURSE SEQUENCE	Semester Hours Credit*
Fall Term	
Anatomy Applied to Rehabilitation	2
Body Mechanics and Kinesiology	2
Field Work I	2
Abnormal Psychology	2
Educational and Social Research	2
Winter Term	
Thesis Seminar	2
Orientation to Neurology and Psychiatry	2
Principles and Techniques of Guidance	3
Corrective Physical Education Applied to Pathological Conditions	2
Elective Course in Social and Community Relationships	2
Spring Term	
Physiology Applied to Reconditioning	2
Seminar in Physical Reconditioning Materials	2
Techniques of Teaching Late Ambulation and Self Care Activities	2
Field Work II and III	4
Project or Thesis Credit	2/4
Total Requirement for Master's Degree	35/37

* A two semester hour course represents three fifty-minute lecture periods and six hours of outside study per week for ten weeks.

Description of the Courses in the Major

Abnormal Psychology (2 semester hours)

The dynamics of individual behavior under stress are studied in this course. In relation to these dynamics, an evaluation of causative and contributing factors in psychopathology; description of the symptom syndromes of the psychologically disturbed individuals; and critical examination of the contributions from clinical, experimental, comparative, psychoanalytical, and psychological fields are included.

Principles and Techniques of Guidance
(2 semester hours)

The various diagnostic and therapeutic techniques are considered in relation to their use in the guidance process. Tests of intelligence, aptitude, interest and personality, anecdotal records, autobiography and relate dmethods, case study, interviewing and cumulative records are described and discussed from the point of view of their ulitization in guidance. Special emphasis is placed and practice offered in methods of counseling.

Orientation to Neurology and Psychiatry
(3 semester hours)

This course reviews many of the common normal and pathological behavior patterns, their causative cine, compulsive disorders, organic disorders of the nervous system, endocrinopathics, electroencephelography, electric shock, insulin, and convulsive therapy, and hypnoanalysis. In addition to the classroom sessions, students spend thirty hours in psychiatric clinical sessions in hospitals and laboratories in Springfield and vicinity. This course is taught by a psychiatrist.

factors, and methods of treatment. The following are some of the topics considered: psychosomatic medi-

Anatomy Applied to Rehabilitation
(2 semester hours)

There is included a review of gross anatomy with reference to the skeletal, muscular, circulatory, and nervous systems. Particular attention is paid to anatomical relationship of various pathological conditions. This course is taught by a physician.

Advanced Body Mechanics and Kinesiology
(2 semester hours)

An analysis of body movements in terms of the muscular and gravitational forces operating on the skeletal structure of the body is made. Common orthopedic and neurological handicaps are studied to determine compensatory action of the human body.

Physiology Applied to Reconditioning
(2 semester hours)

Physiological changes induced by enforced rest on body weight, muscular strength, respiratory and cardio-vascular functions and the effects of common pathological conditions such as respiratory and cardiac diseases upon physiological functions are studied. Emphasis is also placed on the process of reconditioning with various tests which may be used for evaluating the progress of reconditioning. The course is taught by a medical doctor who specializes in physiology.

Corrective Physical Education Applied to Pathological Conditions (2 semester hours)

This is an advanced course in therapeutic exercise and conditioning as they apply to the major pathological conditions. The medical aspects of each of the disease entities is studied in relation to cause, general characteristics, and residual effects. Special emphasis is placed on the values of exercise during the course of the disability and the role Corrective Physical Education can play in reducing the terminal handicap. Some of the topics discussed are paraplegia and hemiplegia, infantile paralysis, cerebral palsy, arthritis, fractures, sprains and dislocations and amputations. A special unit of eight hours is devoted to the techniques of relaxation and is conducted by a visiting expert.

Adapted Sports and Recreation Therapy
(2 semester hours)

The primary objective in this phase of the program is to stimulate thinking by the rehabilitation

students on the various ways which all kinds of physical education and recreational activities can be used in a rehabilitation program.

The first phase of the course involves the study of the adaptation of athletic type activities into a rehabilitation program. (Examples: swimming for the double amputee; wrestling for the blind; volleyball for the wheel chair patient.) The second phase of the program is devoted to the fields of arts and crafts, music, and drama as they are related and may be used in the program.

Techniques of Teaching Late Ambulation and Self Care for the Handicapped (2 semester hours)

Study and practice in techniques of teaching the use of wheel chairs, crutches, prosthetic devices, braces, and activities of daily living as they are used in later stages of rehabilitation is included in this course. Materals and common practices of the manufacture and distribution of all assistive devices are discussed.

Seminar in Physical Rehabilitation Materials (2 semester hours)

This course is limited to students majoring in Physical Education and Recreation in Rehabilitation or individuals employed in rehabilitation programs. It is conducted on a seminar basis with all students doing research in special problems and bringing them to the group for discussion.

Field Work (6 semester hours)

The equivalent of a full year course sequence provides valuable laboratory experience is supplement classroom instruction. Each student receives a minimum of three hundred hours of clinical work under medical supervision.

During the fall or winter terms each student spends approximately one hundred hours at the Northampton Veterans Administration Hospital, a neuropsychiatric institution. Here the students receive special lectures by the hospital staff and gain experience with patients through actual participation in the Corrective Therapy program.

The remaining hours of field work are achieved through a full month of residence in one of several general medical hospitals in the Middle Atlantic-New England area.

Social or Community Relationships (2 semester hours)

In order that all graduate students at Springfield College will have a broader understanding of human affairs, the college requires each person to take a course in social community problems or one of political or historical content.

Methods of Educational and Social Research (2 semester hours)

Emphasis is placed on methods of research with special attention to the preparation of graduate projects and Master's theses in this course. The following topics are treated: types of research; criteria for selecting and planning the problems; preparing the working and final bibliographies; securing data for various types of research; the organization, presentation, and interpretation of date; the form of references; the preparation of statistical tables and pictorial illustrations.

Thesis (2-6 semester hours)

All students are required to do an individual research study. This course provides credit for this work. Formal attendance at research seminar is required during one term. At this time, students are expected to report plans and methods of their own research and invite suggestions and criticisms from the other students.

This program is being offered, as reported here, for the present school year. Following the tabulation of an annual survey to the graduates of the program and after an analysis of the results of a study being conducted by the Education Committee of the National Association, there may be additional changes.

The greatest need, however, does not lie in the individual advancement of the training programs now operating in colleges throughout the United States. An analysis of the different rehabilitattion areas in which physical education should function is essential. Using this as a basis, the colleges and leaders in physical medicine should outline the educational requirements necessary to provide well-trained physical educators for the job to be done.

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*Chief, Corrective Therapy, V.A.H., New Orleans, Louisiana.

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PATRONIZE YOUR ADVERTISERS—THEIR PURCHASE OF SPACE IN THE JOURNAL ACQUAINTS OUR MEMBERSHIP WITH THE BEST. **(See the Directory, page 152)**

CORRECTIVE EXERCISES FOR CHRONIC LOW BACK PAIN AND POSTOPERATIVE RUPTURED INTERVERTEBRAL DISCS

ERNEST A. WILBUR, Ph.D.*

This paper presents a method and procedure which has been used successfully in the treatment of patients with chronic low back pain and postoperative collapsed lumbosacral intervertebral discs by the Corrective Therapy Section of the Physical Medicine and Rehabilitation Service at this hospital.

With a collapsed intervertebral disc patients commonly relate a history of an acute onset of pain in the lower part of the back caused by hyperextension. They have repeated episodes of "lumbago" or "catches" for a time, until eventually there is pain radiating down one of the lower extremities accompanying the original pain or "catch."[1]

The most common distribution appears to be pain radiation down the back and side of the thigh and calf into the lateral aspect of the ankle and foot, thus following the distribution of the fifth lumbar nerve. This pain, less frequently, radiates down into the front of the lower thigh and knee into the anterior aspect of the leg which follows the distribution of the fourth lumbar nerve.

Other patients describe the pain as radiating down the back of the thigh into the calf and heel which follows the distribution of the first sacral nerve.[2] According to Williams,[3] the lesion under discussion, being mechanical in character, should be treated mechanically using mechanical principles. In order to do this there should be a common understanding of the pathological changes and the physiology of the part.

With a collapse of the lumbosacral intervertebral disc, the following changes in anatomical relationships may occur: there is contact between the superior margin of the first sacral facet and the inferior vertebral notch; the anterior-superior aspect of the facet may contact the funicular portion of the fifth lumbar nerve; and radiologically subluxation of the joint may be shown. The contraction of the erector spinae when the lumbosacral joint is in extension will tend to elevate the sacrum which, in turn, forces and anterior-superior aspect of the first sacral facets into firm contact with the fifth lumbar nerves within the foramina. It is under such conditions that most acute attacks occur, as in lifting a weight above the waistline or raising a resistant window, etc.[4]

Low back pain may be caused by means other than collapsed intervertebral disc and demonstrable bony changes, the most common of which must be attributed to weakness of the bony architecture and supporting musculature.

The proper alignment of the pelvis upon the thighs and the vertebral column upon the pelvis is of greatest importance for correct posture and for the correct painless performance of all types of movements. The correct interrelationship of these structures provides a firm foundation for the support of the head, trunk and upper extremities. All of these movements depend on the stability of the pelvis. Movements of the lower extremities are only possible when the pelvis and lower vertebral column are stabilized. Hawley[5] feels proper alignment of the torso, pelvis and lower extremity will largely obviate joint strains and undue fatigue.

The efficiency of the pelvis as a base of support for the weight of the head, trunk and upper extremities is directly proportional to the way in which the sacrum articulates with the fifth lumbar vertebrae and the ilia. These joints, the sacroiliac and lumbosacral, require a forward inclination of the pelvis. This inclination varies considerably with normal individuals and in fact is everchanging, depending upon the various body positions. The amount of forward pelvic inclination varies, according to authorities, from 49 to 70 degrees.[6]

In a normal inclination of the pelvis, the sacral articular facets face somewhat upward while those of the fifth lumbar vertebra face downward, constituting a shelf-like arrangement whereby the weight of the trunk is transmitted to the sacral articular processes in such a manner as to provide maximum support. The inclination of the body of the last lumbar vertebrae, normally about 30 degrees, determines the share of weight which is supported by the body of the sacrum. In excessive pelvic inclination the body of the sacrum provides less support for the superincumbent weight. Therefore, the brunt of the support of the trunk must be borne by the sacral articular processes, a function they can effectively assume providing they face somewhat downward. In many individuals, however, the plane of the lumbosacral articular facets is saggital as in the upper lumbar vertebrae, resulting in a "coasting" downward and forward of the fifth lumbar vertebrae off the promontary of the sacrum.[7]

While we have seen that bony conformation plays an important role in lumbosacral junction protection, the ligamentous support must also be considered for

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its significant aspects. Looseness in the articular capsules will result in the articular processes tilting upon each other. This, in turn, would cause a forward-downward displacement of thte fifth lumbar vertebrae were it not for the joint reinforcement provided by the sacrotuberous and sacrospinous ligaments. These two ligaments hold the distal part of the sacrum and coccyx close to the ischium. It is this mechanism which counteracts the tendency of the sacrum to rotate on a transverse axis with the promontory of the sacrum tilting forward and upward. With the occurrence of such a tilt, the support normally afforded by the body of the sacrum is greatly lessened, and the danger of spondylolisthesis greatly increased.[8] Then, an excessive degree of pelvic inclination with the corresponding increase of lumbar lordosis may cause a displacement of the sacrum and the fifth lumbar vertebrae.

The lumbosacral junction depends upon proper pelvic inclination for protection. Proper inclination of the pelvis, in turn, depends mainly on the tone of the abdominals and gluteals since the ligaments cannot maintain the proper position without muscular assistance. The rectus abdominis, principally, is responsible for the suspension of the front arch of the pelvis, while the gluteals and the deep posterior hip and thigh muscles maintain the posterior part of the pelvis, exerting a downward pull. In other words, proper pelvic balance or inclination results from the action of these two groups of muscles. These cause a rotary movement of the entire pelvic girdle on a transverse axis passing through the centers of the two hip joints.[9]

The function of the back is to supply stability, flexibility, extensibility, rotation and lateral movements. "Steindler has shown that the pelvis motivates the back rather than vice versa."[10] Hudson and Hettesheimer[11] consider muscle imbalance and functional decompensation as the physiological basis of many backaches of obscure origin.

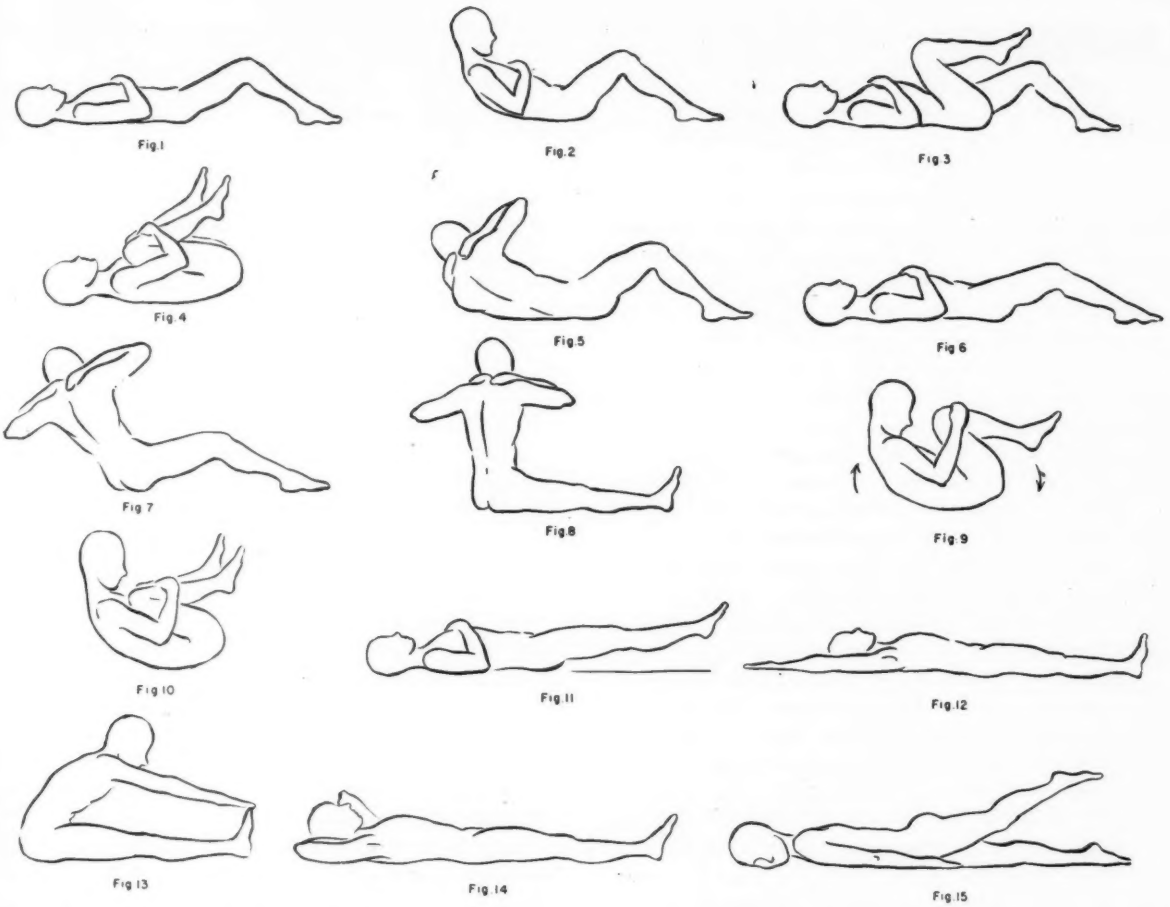
It is the experience of this writer that by correcting the pelvic inclination through exercise, and thereby reducing the lumbosacral angle, chronic low back pain can be relieved. The exercises which follow are designed to strengthen the gluteals an dabdominals, and by so doing obtain and maintain a correct pelvic inclination, reduce the lumbosacral angle, and thereby relieve the pain. When pain is relieved the patient is advised to continue his final series of exercises indefinitely. These exercises are not original since every conceivable body movement has already been described. They do compare, markedly, with the selection of exercises as advocated by Williams[12] and deliberately so. The effectiveness of the program following, however, is in the selection, adaptation and progression of the exercises used previously by others. The same progression of exercises are used in the treatment of postoperative intervertebral herniated discs.

The exercises are grouped into three categories: Class A (Beginning), Class B. (Intermediate), and Class C (Advanced). The exercises are performed twice daily and ten repetitions are done the first day, a progression of one being added every other day until twenty repetitions are reached, except where otherwise stated. When a patient reaches twenty repetitions of Class C, he is usually advised to daily continue this series indefinitely.

CLASS A (BEGINNING).

1. BACK FLATTENER. Patient lies on his back with knees flexed and feet flat on the plinth, with the hips flexed around 120 degrees and knees at approximately 90 degrees (Fig. 1). Patient is instructed to contract the gluteals, which pushes the posterior portion of the pelvis downward, flattening the low back against the plinth. This exercise actively develops the gluteus maximus. Each setting, or contraction, should be held for a count of three following which the patient relaxes prior to starting another contraction. Occasionally a patient has difficulty in getting a satisfactory gluteal contraction. In such cases, the patient is instructed to raise the buttocks slightly off plinth which causes a stabilizing contraction of the gluteals.
2. PARTIAL SIT-UP. Patient lies on his back with knees fully flexed, hips flexed at about 120 degrees and knees around 90 degrees, while both feet are flat on the plinth (Fig. 1). Patient is instructed to raise head, placing chin on the chest, and raise the upper trunk off tthe plinth as high as comfortably possible (Fig. 2). This exercise is used principally to strengthen the upper abdominals. Each exercise is held for a count of three and patient returns to starting position. Repetitions are done slowly.
3. BACK FLATTENER AND SIT-UP. Patient combines the first two exercises, using the same progression as outlined (Fig. 1 and 2).
4. SINGLE TUCK. Patient lies on his back in same position as noted in Figure 1. He draws knee to the chest, within comfortable limits, returns the leg to starting position (Fig. 3), and alternates with the other leg. This exercise has the same function as Number 5 below.
5. DOUBLE TUCK. Patient lies on his back with knees bent and feet flat on the plinth. Hips are flexed at same angle as in Figure 1. Patient draws both knees up toward the chest as far as comfortably possible, holds for a count of three, and returns to original position (Fig. 4). This action

repetitions of each of the exercises comfortably, fol-



lowing which he progresses to Class B.

causes posterior pelvis to push downward, flattening the lumbar spine against the plinth. This exercise is primarily designed to stretch the erector spinae group while encouraging flexion of the lumbosacral spine. It also develops the lower abdominals.

With all of these exercises, pain is the guiding factor which determines how much motion is performed on each exercise. If the patient complains of pain in the back upon doing the partial sit-up this exercise may be temporarily modified with the Head Raiser. In this exercise, the patient is instructed to raise the head off the plinth as high as comfortably possible. When patient is able to perform a partial sit-up without pain, he is returned to that exercise.

When a patient complains of pain on the double tuck exercise, it may be discontinued until such time as he can perform it without discomfort. In the meantime he continues with the single tuck routine.

The above exercises constitute Class A series and are continued until the patient can perform twenty

CLASS B (INTERMEDIATE).

1. BACK FLATTENER. This is the same exercise described in Class A. Patient continues to maintain 20 repetitions, twice daily.
2. SIT-UP. Patient lies on his back with legs outstretched and arms in full forward flexion alongside the head (Fig. 12). He is instructed to swing the arms forward-downward and come to a sitting position. He then touches the toes, keeping knees straight (Fig. 13). While this exercise stresses upper abdominals, it also has value as a hamstring and erector spine stretcher. Patient begins with five repetitions and increases one every other day until twenty are reached. When he is able to perform twenty sit-ups comfortably, he is ready for the next series. If acute lumbosacral angle occurs in starting this exercise, he is continued on Number 2 of Class A until stronger posterior pelvis stabilizers are present.
3. DOUBLE TUCK ADVANCED. Patient lies on his back with the knees and hips flexed at about 160 degrees (Fig. 6). He draws both knees up toward the chest, holds for a count of three, and returns to starting position (Fig. 4). As the patient progresses the starting position is changed—the angle of the hips and knees being gradually

increased until legs are flat on the plinth with knees straight. When the patient can raise both legs six inches off the plinth, with knees straight, and without a severe change in the lumbosacral angle, he is progressed to the next series.

4. PARTIAL OBLIQUE SIT-UP. Patient lies on his back with hands clasped behind the neck, knees flexed and feet flat on the plinth. He twists the trunk to the left by raising the right shoulder as high as possible (Fig. 5). From this position, patient raises the trunk as high off the mat as comfortable, holds for a count of three and returns (Fig. 7), alternating with left shoulder. This exercise stresses the obliques.

CLASS C (ADVANCED).

1. BACK FLATTENER. Continues 20 repetitions.
2. FULL SIT-UP. This is a series of three movements. The patient lies in supine position, legs outstretched, hands clasped behind the neck (Fig. 14). Patient first performs a full sit-up and returns to starting position (Fig. 8). For the second movement, patient twists trunk and elevates right shoulder as described in Number 4, Class B, above. From this position, patient raises the trunk to a full sit-up and returns. For the third movement, patient alternates with left shoulder. This series is designed to strengthen the anterior abdominals and the obliques. Starting with six repetitions for each of the three movements, patient uses same progression (increasing number by one every other day), until twenty repetitions for each movement can be comfortably accom plished.
3. DOUBLE LEG RAISER. Patient lies on his back with both legs outstretched, arms folded across chest. Patient slowly raises both legs six inches off the plinth, keeping the knees straight, and slowly lowers to starting position (Fig. 11). Starting with five repetitions, progression is the same as above until twenty are reached. It should be stressed that a gluteal contraction, prior to and during the double leg raiser, will reduce thte tendency of compression and hyperextension of the lumbosacral spine. This exercise is designed to strengthen lower abdominals.
4. ROCKER. Patient lies on his back with both knees held close to the chest (Fig. 4, 9 and 10). The grip on the knees should not be relaxed during the course of the exercise. Patient is instructed to keep the chin against the chest and the back rounded. The thighs are spread apart in order to avoid contact with the abdomen and chest. When the knees are drawn back, the patient contracts the abdominals, and he is instructed to roll forward-upward, relax and roll back to the starting position. This exercise stretches the erector spinae and encourages flexion of the lumbosacral spine.
5. SINGLE EXTENSOR. Patient lies in prone position, arms at sides. He hyperextends left leg as high as comfortable, keeping knees straight, holds for a count of three and returns to starting position (Fig. 15). Patient alternates left and right. This exercise is designed principally to strengthen the gluteux maximus and the hamstrings.
6. DOUBLE EXTENSOR. Patient lies in a prone position, knees extended, with hands at sides. He raises both legs off the plinth with knees straight, holds for a count of three and returns to starting position—beginning with six repetitions and progressing to twenty. This exercise principally is for the gluteals maximus and hamstrings. If extreme lumbosacral angle occurs, this exercise must be postponed until abdominal strength is sufficient to maintain proper pelvic inclination.

The success of these postural exercises lies in their adaptation from the prescribed routine in terms of patients' improvement. When a patient completes exercise series "A" without undue pain, he progresses to series "B." If patient states any of the new progression is painful, that exercise is moderated within painless limits until such time as he can perform the correct action comfortably.

An example of this adaptation is the following case recently discharged. Mrs. A. was a 38-year-old, white female veteran who was admitted to the hospital complaining of pain in the lower midback area of 10 years' duration. The pain was described as sharp and prevented her from straightening up. It was made worse by coughing, sneezing and lying down, and was somewhat relieved by standing. Complete studies by the x-ray and laboratory were negative. The Orthopedic Service found no evidence of bone or joint pathology. Upon the recommendation of the Orthopedic Consultant, she was referred to the Corrective Therapy Section of Physical Medicine and Remabilitation Service for specially adapted postural exercises. All exercises were modified within tolerance until the patient was able to perform the first series or Class A comfortably. Patient stated, midway through the Class B series, that she was feeling markedly improved, and prior to completion of the Class C series she was asymptomatic. Instructions were given to continue twenty repetitions of Class C daily following discharge.

Patient reported back for followup 15 months after discharge. She stated she was still asymptomatic and was performing her exercise routine daily. Physical examination revealed normal pelvic alignment with good abdominal and gluteal tone.

"LEG PRESS" AS AN AID IN REGAINING MUSCLE POWER

RUDOLPH JAHN, B.S. AND ROY H. NYQUIST, M.D.*

INTRODUCTION

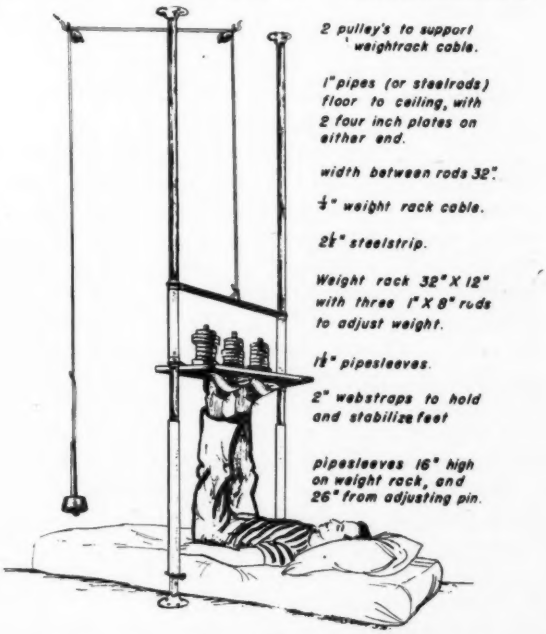
This paper presents clinical observations and case records which (a) emphasize the importance of the "leg press" as an aid in developing and increasing the power of weakened muscles of the lower extremities, and (b) stress the value of the "leg press" apparatus. The reported findings are based on the results of its use with a variety of clinical problems over a period of approximately two years and indicate a graded and marked improvement of the patients. Prior to being tested, patients were given courses of treatments of passive and resistive exercises, heat and massage, muscle stimulation and muscle re-education. Graded resistive exercises coordinated within the patient's physical and mental limits directed toward "self-care" and toward maintaining general health by preventing muscular deterioration were also given.

We were confronted with many types of medical problems and had an opportunity to evaluate a variety of clinical conditions. Among these were patients with residuals from poliomyelitis, hemiplegia, traumatic encephalopathies, multiple sclerosis, partial paraplegia and partial quadriplegia. The rationale for treatment was based upon the De Lorme techniques: (1) of pregressive resistive exercises with adjustment in the early stages of activity to allow for individual tolerance and endurance; (2) the principle of counterbalancing was also employed for exercising muscles which were so weak that they could not complete a full arc of motion against gravity. The results depended on the type of disease, extent of injury, length of time of disability and the age of the patient. Some muscles were weak due to impaired innervation of muscle fibers and a diminished blood supply and their atrophy was not due to disuse. However, both types of muscles were tested: (1) those atrophied from paralysis of trauma or disease; and (2) those atrophied exclusively from disuse. The results indicated that muscles weakened by paralysis respond in much the same manner as do muscles weakened by disuse; however, there is a difference in degree which is proportional to the number of remaining innervated muscle fibers. This must be taken into account when resistance is applied.

METHOD USED

The following method was used in order to determine the tolerance to an exercise load. It was first determined with the "leg press" what weight could be raised by the leg or legs. The maximum weight was then divided into tenths and a series of ten performances or a "set," was started with one-tenth of the maximum weight and a tenth was added after each 'set;" this was carried out until the maximum load was reached. For example, if the maximum weight resistance was found to be ten pounds, then one-tenth or one pound would be pressed ten times. The next ten executions would be done with two pounds, then with three pounds and so on up to ten pounds. It required two or three weeks before the maximum resistance could be reached in the early stages of treatment. By using small muscle loads initially and then gradually increasing the load after each "set," the muscles were "warmed up" and overloading was avoided. Patients were tested at weekly intervals in order to evaluate progress and to establish a new maximum if necessary. There was no noticeable improvement in some cases while in others an increase of muscle strength was noted which went as high as fifteen pounds in a week.

VERTICAL LEGPRESS, WITH COUNTERBALANCE


2 pulley's to support weightrack cable.
1" pipes (or steelrods) floor to ceiling, with 2 four inch plates on either end.
width between rods 32".
¼" weight rack cable.
2½" steelstrip.
Weight rack 32" X 12" with three 1" X 8" rods to adjust weight.
1¼" pipesleeves.
2" webstraps to hold and stabilize feet
pipesleeves 16" high on weight rack, and 26" from adjusting pin.

The principle of counterbalancing had to be used in some cases because, the patient could not press the weight of the rack which, without counterbalancing, weighed 35 pounds. In some cases the patients could not even press the weight of the legs; therefore, it

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became necessary to counterbalance both the weight of the rack plus the weight of the legs. By a system of overhead pulleys with enough weight attached to offset the weight of the rack or extremity, the weak muscles are permitted to carry the legs or leg through a full range of motion. When the muscles of the legs are so weak that the extremities could not be kept in contact with the weight rack, it was necessary to secure the feet to the weight rack by means of foot straps which are attached to the bottom of the rack. This method makes it possible to grade progressive resistive exercises through a full arc of motion to extremely weak muscles; therefore, the principles of progressive resistive exercises are not restricted by counterbalancing, but is made possible.

RESULTS

Case I. A fifty-six year old Caucasian male with partial paraplegia at T-10-11. When first tested, this patient could press 14 pounds. A total of 100 repetitions was carried out twice daily for one week and then the patient was again tested to determine amount of increased leg strength. No improvement was noted. The same routine was repeated the following week and the patient was again tested. The test showed a two pound increase in strength. This procedure was followed for a period of six months with a gradual weekly increase of strength and endurance. The patient now is pressing 85 pounds and doing 800 repetitions daily and now is able to walk on drop-foot braces with the aid of Canadian Crutches. His endurance has improved so markedly that he tolerates the entire workout without rest and his general condition has improved greatly.

Case II. A thiry-five year old Caucasian male suffered from residuals of poliomyelitis. He had a shortening of the Achilles tendons, limited circumduction of feet due to weak anterior tibialis muscles bilaterally and he used a wheelchair for support in walking. He could press 80 pounds during the first test. The same procedures were used for a period of approximately six months. The patient was able to press 250 pounds on discharge from the hospital. The weak ankle and foot condition was almost completely corrected and a full range of motion in ankle joints was achieved. He ambulated without appliance or assistance.

Case III. A forty-five year old Caucasian male suffered from an incomplete quadriplegia following a cervical cord injury and has spastic extremities. He was able to walk behind a wheelchair with the assistance of a therapist, but with a spastic gait. On the first test he could press 80 pounds. After ten months of prolonged resistive exercises with the usual procedures he is now able to press 180 pounds and shows marked improvement of spasticity. He is able to stand and ambulate without appliance or assistance. Endurance and general physical fitness improved.

Case IV. A twenty-five year old Caucasian male suffered from residuals of poliomyelitis. He walked with Canadian crutches but had difficulty in maintaining balance on climbing stairs and inclines. He could press 40 pounds. After six months of preconditioning and routine resistive exercises on "leg press," he is now capable of pressing 125 pounds and he can ambulate with aid of one cane including travel over rough ground and obstacles. There is no instability and his general physical condition has improved.

Case V. A fifty-eight year old Caucasian male suffered from a post-traumatic partial quadriplegia at C-4 and 5. He was paralyzed a period of 3 months in all four extremities which were very spastic. On the first test the technique of counterbalance had to be used because he could not press more than 5 pounds. The counterbalance was completely eliminated after six weeks during which the usual methods and procedures were followed. After 8 months he is able to press 90 pounds. Ninety per cent of his spasticity was eliminated especially after strenuous exercises due to the fatigue phenomenon. He is able to walk with the aid of Canadian crutches for a distance of approximately 300 feet without assistance from the therapist and his general physical fitness has markedly improved.

Case VI. A thirty year old Caucasian male suffered from partial paraplegia at L-3. After six weeks of general conditioning of all extremeties he could press but 3 pounds with the "leg press." The technique of counterbalance was used to eliminate the weight of the platform and progressive resistive exercises were started. At first the patient tolerated only 50 per cent of the routine. Now in his fourth month of treatment he has progressed to 40 pounds resistance. He is able to ambulate with long leg braces and aid of crutches without assistance from the therapist. The leg strength and endurance have improved and his general physical fitness shows marked advances.

Case VII. A twenty-four year old Caucasian male suffered from residuals of a lesion in the mesencephalon and upper portion of the pons on the left side. He had numbness of the right side, ataxia in both hands and had disturbances of equilibrium on standing. On his first test he could press 70 pounds but his feet had to be secured to the platform of the "leg press" because of spasticity. After three months of therapy he is able to press 260 pounds and to ambulate behind a wheelchair. There is less spasticity and he does not need any more stabilization on the "leg press." His endurance and general physical fitness have improved to the point that he can ambulate behind a wheelchair for a distance of about 300 yards without resting.

Case VIII. A thirty-two year old Caucasian male suffered from a Thrombosis of the left middle cerebral artery which caused residuals of a right hemiplegia and aphasia. He was able to ambulate with a right drop-foot brace. On the first test the right leg could press 45 pounds. After six months of therapy he was able to press 120 pounds. There is better coordination on ambulation and he no longer requires a drop-foot brace. The equilibrium has greatly improved as has his general physical fitness.

Case IX. A thirty year old Caucasian female suffered from multiple sclerosis. She walked with a spastic gait and needed support from therapist. Although she could feel her feet on the ground she had to watch where she placed them. She was capable of walking behind a wheelchair only when it was loaded with another person's weight. On the first test she could press 40 pounds with both legs. Three months later she could press 95 pounds and was discharged. At that time she was able to walk with the aid of only one cane and has lost her spacticity almost completely. The coordination was 85 per cent of normal and her general physical fitness has improved. However, one must consider that she was in a period of remission.

Case X. A thirty-one year old Caucasian male suffered from residuals of multiple sclerosis. He had a marked spasticity of the lower extremities but his sense of sensation was only slightly diminished. He was able to stand but he could not ambulate. He was apparently in a stage of incipient remission and this was advantageous for the start of treatment. He was first conditioned on the Elgin exerciser in a sitting position in order to provide more stability to the legs. On the first test with the "leg press" he could press 45 pounds. On discharge two months later he was able to press 120 pounds, and was able to walk with the aid of Canadian crutches even over rough terrain.

DISCUSSION

The presented evidence supports the hypothesis that remaining innervated muscle fibers in cases of paralysis respond to progressive resistive exercises with an increase of strength and work capacity in much the same manner as normal muscles which are atrophied from disuse. The changes of muscle function, especially power, which were observed during the exercise period are probably due chiefly to a hypertrophy of fibers, promoted by the graded exercises and not to a recovery of paralyzed muscle fibers. This conclusion seems justified because of the improved power which took place in those cases with prolonged injuries whose muscles previously had been observed to be very weak prior to graded exercises.

NUMBER AND TYPE OF PATIENTS TREATED

Type	*No. of Cases*	*Results*		
		Good	*Fair*	*Poor*
Paraplegia	6	4	1	1
Quadriplegia	4	2	1	1
Hemiplegia	76	41	30	5
Multiple Sclerosis	11	6	3	2
Poliomyelitis	23	19	3	1
Neurological	26	20	4	2
Total	146	92	42	12

These cases form a random sample from this hospital.

SUMMARY

It is recognized that specialized exercise equipment generally increases the efficiency of treatment. The "leg press" has specialized qualities which stimulate the incentive and enthusiasm of the patient and motivates him to improve his performance. This results eventually in marked improvement of muscle strength and endurance and improved general health.

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ACKNOWLEDGEMENT

The authors express their appreciation to the Corrective Therapy Staff of the Physical Medicine Rehabilitation Service, Veterans Administration Hospital, Long Beach, California. Appreciation is also expressed to Laurance W. Weeks, Corrective Threapist, Veterans Administration Hospital, Long Beach, California, who was responsible for building the first "Leg Press" to be used in this Corrective Therapy Clinic.

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RESEARCH: A METHOD OF DETERMINING THE MAXIMUM LOAD, FOR TEN REPETITIONS, IN PROGRESSIVE RESISTANCE EXERCISES FOR QUADRICEPS DEVELOPMENT

KARL K. KLEIN, M.Ed.* AND ELDEN JOHNSON, M.A.**

The use of progressive resistive exercise for development of quadriceps strength is an accepted technique of rehabilitation. The DeLorme method has been responsible for validating this technique and has been instrumental in the development of progressive testing procedures for the administration of the exercise program.

In the total administration of this type of program it has been found that the determining of the maximum weight resistance for the ten R.M. phase of exercise has been a time consuming phase of the procedure.[1] The following experimental evidence is presented to show the development of a new technique that will reduce the time necessary in the administration of this phase of the program.

The experimental evidence was collected from six cases that demonstrated considerable quadriceps atrophy. Three of the cases were post menesectomies ranging from one to three months post operative before the administration of the program. The other three were muscle atrophy cases resulting from athletic injsury. The time of injury ranged from one year to one month before the administration of the program.

The major emphasis of the program was the application of progressive resistive exercise for the development of quadriceps and to gather statistical evidence concerning the cross transfer of muscle development to the unexercised leg. The evidence gathered to substatiate determining of the maximum ten R.M. from the maximum single lift was a secondary outcome. Indications for substantiating this secondary factor became evident during the first week of testing and thereafter became a primary observation in the individual program.

Five of the six cases were tested for maximum lift capacity, after a short period of warm up exercise with light resistance, during the first day of the program. One case was placed on light resistive exercise because the post operative period was less than one month. This patient was tested for maximum lift capacity on the third week of exercise (seven weeks post operative).

Throughout the individual period of exercise weekly tests were administered to determine the exercise program for that week. A total of thirty eight tests were administered by the author, and the methods and procedures were duplicated in each individual case.

The basis of the DeLorme program was adapted to the modification and experimental evidence produced by the English adaptation[1] of tthe Delorme system. This adaptation starts with the ten R.M. and gradually reduces weight and increases the number of movements until the exercise period consists of one hundred movements (this program ranged between eighty and one hundred repetitions per exercise period).

Exercise and skill of determining the amount of weight to be used for each patient, for the single lift capacity, is determined by the therapist and judgment and skill increases with experience. If the patient can successfully lift the weights once and is unable to complete the second movement to full extension the single lift capacity is then determined. If two repetitions are completed successfully the patient should be allowed to rest and through estimation of ease of movement, the expressed feelings of the patient, and experience the amount of weight to be added is computed.

The estimation of the initial single lift capacity is the most difficult to determine. Thereafter the weekly tests for increased capacity will usually range between five and fifteen pounds.* According to English experimental evidence an increase of ten pounds maximum single lift capacity can be expected through the application of this program.[2]

After the maximum single lift capacity is determined, the problem of weight reduction from this total poundage had to be estimated for the maximum ten R.M.

Three cases were treated during the first week (post operative menesectomies), but only two tested for maximum lift capacity. The third was placed on light resistive exercise due to post operative status, but was tested during the third week. Ten pounds of weight was removed from the single lift capacity, of each individual, and it was found that they were capable

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*Refer to previously indicated paragraph.

of doing over the ten R.M. limit. They were allowed to complete that daily program without further testing. The following day the patients were tested again, for the ten R.M. capacity with five pounds being removed from the single lift capacity. One experienced difficulty in making the ten R.M., and one was capable of starting but not completing the eleventh movement. The rest of the week the individual program was based on the second days findings. These patients exercised four times per week.

At the beginning of the second week it was again necessary to determine the maximum single lift. This was easily resolved as a result of evidence expressed in a previous statement.* Again five pounds of weight were removed as indicative of the ten R.M. capacity. One of the two patients was capable of lifting ten R.M.; one was only capable of nine R.M., but within the week the ten R.M. was reached. The program was held constant for the week.

The same procedure was followed during the third week and the ten R.M. capacity was established by reducing the maximum single by five pounds. The light resistive exercise patient was placed in the program and three additional patients (athletic injury) were started. All were tested as previously described and the ten R.M. was arbitrarily established according to described procedures.

Each of these six patients participated in their individual program for a period of eight weeks until a relatively balanced single maximum lift of both quadriceps muscle groups was obtained. Weekly tests were administered for comparative bilateral quadriceps strength and to determine the weekly exercise program. When a relative bilateral balance was restored the patients unilateral exercise program was discontinued. If there were indications for additional quad strength it was suggested the patient continue with the application of the following heavy resistive bilateral quadriceps exercise[3]; "sit on a stall bar bench with the edge of the bench three to four inches behind the knee, hook the feet beneath the lower rungs of a stall bar; by forcefully extending the knees the body is raised from the bench. This movement is done slowly up and down fifteen to twenty times during two exercise periods daily. The graduation of weight is adjusted by the backward lean of the body."

Summary and Conclusions

As a result of the experimental evidence and results obtained it is suggested by the authors, that the method developed here is worthy of consideration in establishing of the exercise program for post menisectomy and quadriceps atrophy cases due to athletic or traumatic injury.

It is further possible that the same principles of weight reduction in the progressive resistive exercise program for other areas of the body could be utilized for determining the ten R.M. for exercise.

Occasionally the five pound weight reduction will not be sufficient for the patient to complete ten R.M. of exercise. If this situation occurs, there is evidence that the patient will progress to lift the ten R.M. before the end of that exercise week. If such a situation exists over a week or two, further study of the individual problem is recommended, possibly a greater reduction of weight from the single maximum lift, i.e., seven and one-half to ten pounds, would be the solution to the problem.

In all cases, the problem of individual differences should be considered in making deviations from the established procedure.

Throughout this study experimentation was done with the use of the tensiometer[4] in an attempt to corelate tension strength with the one R.M. lift capacity of the patient. Although no definite conclusions have been obtained, there are indications that a positive relationship can be established between tensiometer tension pound strength and the one R.M. capacity of the patient. With the experimental data available from this study, tensiometer readings have been about three times the one R.M. capacity of the patient. If such relationships can be established further cure of program administration will be accomplished.

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AMERICAN ASSOCIATION OF REHABILITATION THERAPISTS

The Fourth Annual Convention and Clinical Conference of the American Association of Rehabilitation Therapists will be held in Chicago, Illinois at the Edgewater Beach Hotel, September 8, 9, 10, and 11. The Committee has planned a program which will present an opportunity to hear and meet leaders in physical medicine and rehabilitation. The resort hotel on the shores of beautiful Lake Michigan, as well as other attractions in Chicago, give assurance of a worthwhile vacation. All members and visitors who are interested in rehabilitation are invited to attend.

AN AUDIO-VISUAL AID TO GAIT TRAINING

CECIL W. PAINTER, M.A.*

In the total rehabilitation program, ambulation is one of the basic skills in which many handicapped patients must be retrained. This is accomplished by gait training, which, in most instances, seeks to reestablish and imitate the practical, functional, and cosmetic elements of normal locomotion. Essential elements in the program are gait analysis and appropriate training methods.

There are many approaches to the study and analysis of gait; however, among the more practical aspects are the temporal and spatial relationships of foot contacts with the walking surface. These contacts are successive terminal stages in the locomotor process; therefore, their characteristics reflect the nature of the preceding movements. Conversely, altering their characteristics directly influences changes in the walking pattern. The relationship of foot contacts thus provides an effective medium for evaluating and controlling gait. In applying the kinematic principles in retraining of gait, it is necessary to consider the elements of time and the three dimensions of space. There are variations in the foot contacts of different individuals; and, in the same individual, there frequently exists an asymmetrical relationship for any given characteristic. Although ranges of normal variation are not established, there are certain consistencies and uniformities of the temporal and spatial patterns of normal gait which are references for gait training.

During locomotion on a level surface at a constant velocity, there is a natural rhythm to gait; and, for practical purposes, it may be assumed that—

1. The time intervals between heel contacts are equal, and
2. The distances that each foot is placed in front of the other are the same.

Furthermore, the lower extremities tend to move in a sagittal plane close to the midline of the body, thus

3. The transverse distance btween striking points of the inner borders of the heels is small—within two inches—, and
4. The angles of foot axes with the direction of progression are within twenty degrees.

Based on the uniformity of the temporal pattern and length of step and on the consistency of the width of the base and angle of foot axes, the following audio-visual arrangement was devised to aid the handicapped person in his effort to reestablish the elements of normal gait.

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Description of Equipment

1. Boot Camp (Fig. 1.) :

A walking mat of composition rubber ,twenty feet long and thirty-five inches wide, placed between parallel bars and beneath an overhead trolley bar, serves to aid in the preliminary gait training of patients requiring supportive aids. As visual references for evaluating and controlling the spatial patterns of foot contacts, the mats have the following painted markings:

a. A *walking corridor,* the length of the mat, is designated by two parallel while lines, eleven inches apart.

b. A *walking base reference,* designated by a red line, two inches in width, runs parallel to the corridor at equidistance between the white lines.

c. *Step length markings* are at right angles to the walking corridor. They are arranged to provide three different step lengths, each of which has a color designation. To aid in the selection of appropriate step length markings, numerals in matching colors are painted at the entrance to the corridor; a white "20" indicates the use of white mark-

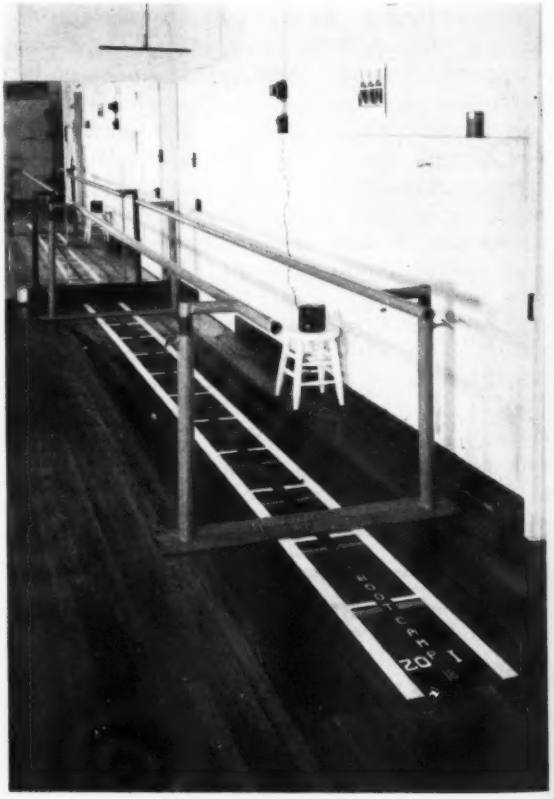

FIG. 1

ings for a twenty inch step; a red and white "10" indicates the alternate use of red and white markings for a ten inch step; and a blue "18" indicates the use of blue markings for step lengths of eighteen inches.

2. Advanced Training (Fig. 2.):

For training patients in independent ambulation, a walking mat is placed in an area clear of supportive aids. This mat provides three walking corridors. Except for additional length, each of these—with its walking base reference—is identical with that previously described. For purpose of identification and motivation, the corridors are named "Able," "Baker," and "Charlie." Since the step length of an individual is determined by many variables, including the type and degree of his disability, a selection of seven different step distances is afforded by varying the markings in each corridor. These distances progress at two inch increments from eighteen to thirty inches. To aid in the selection of the appropriate corridor, the names and identifying numerals in matching colors are placed at the beginning of the mat.

3. Audio Metronome:

As an auditory aid for evaluating and developing the temporal pattern of gait, a metronome is used in conjunction with the walking mat (Figs. 1 and 2). The metronome is electric and produces a sound signal, controllable in volume, which can be regulated from 40 to 280 beats per minute.

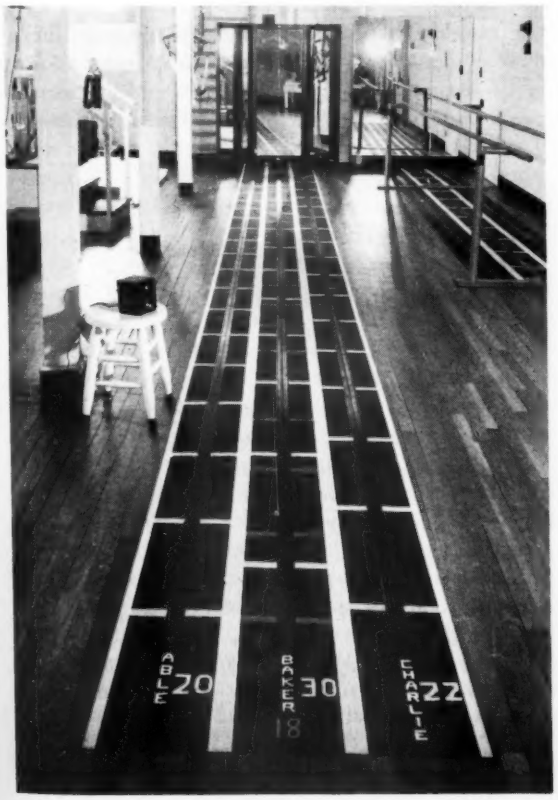

FIG. 2

Use of Equipment

The audio-visual apparatus has proven to be an effective training aid for reestablishing the practical, functional, and cosmetic elements to impaired gait. By providing objective references for the study of the temporal and spatial relationships of foot contracts, it serves as a medium for (1) evaluating abnormal patterns of gait which are reflected in faulty foot contacts, and (2) controlling the relationships of the contacts to effect favorable change in the total movement patterns. A standard routine or sequence for the use of the equipment has not been established. As with most training aids, maximal effectiveness is gained by applying and adapting it to the individual problems presented.

Confining gait within the limits of a corridor encourages movement of the lower extremities in a sagittal plane. The walking base line provides a reference to the transverse distance between the striking points of the inner borders of the heels. Together, the corridor and its center line aid evaluation and control of the width of the walking base and the angles of foot axes with the line of progression.

The step length markings aid in developing equal and uniform walking strides. Markings, that are appropriate to the individual's ability, are selected and are changed progressively until optimum step lengths for given velocities are developed. Differences in the length of steps with the same or the contralateral extremity are readily noted by referring to the markings.

The auditory signals from the metronome promote temporal equality of steps. The cadence initially adjusted to the patient is gradually altered to effect changes in the locomotor pattern. Metronome and step length markings used conjunctively assist in restoring a rhythmical gait by developing equal and uniform step lengths with consistent time intervals between heel contacts.

The audio-visual aid described can be a valuable adjunct to the gait training program. It has proven to be effectively applicable to a wide range of disabilities requiring retraining in ambulation, particularly to the hemiplegia and prosthetic training of the lower extremity amputee.

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THE MODERN MEANING OF THE "TOTAL PUSH" CONCEPT

ARPAD PAUNCZ, M.D.*

The title of this paper is a challenge and an obligation. It is a challenge for the redefinition of the terms "modern" and "total push," and an obligation for the follow-up of the principles inherent in the concept.

The word "modern" pertains to present and recent time and has nothing to do with the ancient and remote. But is this really true in regard to our problem? It is the peculiar manifestation of the science of human nature that its findings are rarely discoveries in the strictest sense of the word. They are rather rediscoveries of ancient wisdom and insights, and the recent contributions are more in the nature of reformulations than genuine creations.

The concept of the "total push" is not new or modern at all. Actually, it is as old as recorded history. Certainly, the superficial manifestations of treatment procedures have undergone radical changes dominated by the spirit of the time, but the fundamentals have remained unchanged, readily perceptible by those who are willing to observe and see.

The term "total push" was originally coined by Myerson in 1939 but its essence was contained already in the publications of Pinel and Conolly at the end of the Eighteenth and beginning of the Nineteenth Century. It is interesting to note that the Illinois State Board of Public Charities' Report at its Conference of Insanity in 1870** expresses principles to which every psychiatrist of today could subscribe and with which to be identified one may feel justifiably proud.

A direct quotation from the Conference Report will make their stand convincingly clear[1]: "To render asylum life more like the outside world, (it) is needed a greater variety of amusement, more frequent assembling together of the insane and the sane, more extended intercourse between patients and their friends, a system of recompense for the patients' labor, greater freedom of action accorded to convalescent and trustworthy patients, the introduction of female influence into the management of the men's wards and especially the entire abolition of mechanical restraint;" and further: "One should introduce useful employment, by which the springs of life may be stirred." A truly magnificent document which, by its attempt to liberate patients from their mental slavery, is worthy of the spirit of the other great emancipation, coming also from an Illinoian a few years eariler.

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**I am thankful to the late Dr. M. Pollack for calling my attention to this report.

For the systematic execution of the principles mentioned above, full credit must be given to the late German state hospital superintendent, Herman Simon from Guetersloh[2], whose practical accomplishments became the pattern followed by almost all other European institutions. Simon attacked the three basic evils in the institutional treatment of psychiatric patients: (1) the inactivity of the patients, (2) the unfavorable hospital atmosphere, and (3) the principle of irresponsibility of the patient. Simon's real contribution was aimed, however, toward the third evil: the irresponsibility of the patient. Simon established in this connection principles which even today deserve further exploration and elaboration. The most important of these principles is: There are "still normal" characteristics in the psychotic patient. A more detailed analysis of these principles has been discussed in another paper[3]. It is vital to emphasize again, however, the possible consequences of such principles.

The patient, as a person with his immediate and direct inner experience, has to a limited extent freedom of choice in either becoming the master of his own difficulties or in succumbing to them as a slave. The assignment of such choice reaffirms his human dignity and re-establishes his sense of responsibility for his action. This, in turn, forces us to an essential re-evaluation of many of our psychiatric values and to the establishment of a therapeutic regime which almost automatically follows.

When surveying some of the modern therapeutic successes, it must be kept in mind that for the results accomplished credit should be given more to our deepened understanding of the patient as a person than to our increased humanity in dealing with him. "Increased humanity" may function as frame of reference but our therapeutic grasp helps to mold the forces and to give meaning to the goal.

Why does aggressiveness and destructiveness of patients decrease with the reduction or elimination of restraints? Why is the number of privileged patients on the increase? Why can even the most disturbed wards be ornamented with pictures and drapes and furnished with attractive pieces? Why are birds so well taken care of on the closed wards and flower pots so well cultivated even in buildings for the deteriorated patients? Why can even organically determined soiling and smearing be brought under control?

Because the new approach brings out and revitalizes the slumbering potentialities of the patients and redirects them to productive and creative channels. No

matter how demented or deteriorated, patients are still human beings with something psychological and mental going on in them. Like a seed can start germinating under certain circumstances even after decades of latency, psychiatric patients may also blossom out and may regain their contact with the outside world even after ten to twenty years of autistic or demented isolation. Only, of course, we should know that they can be reached and their potentialities constructively rechannelized. This is the most challenging task of the hospital's personnel and the greatest reward when it is accomplished.

In our hospital certain practical steps have been taken to bring us closer to the realization of these aims. Two different wards have been visited weekly by the Manager, Chief of Professional Services, and Director of Professional Education to survey the activities and assignments of the patients. The Chief Nurse or her representative and the nurses and psychiatric aides in charge of their respective wards constituted the first team. Step by step other departments involved in therapy became interested an voluntarily offered their participation and cooperation. The Departments of Psychology, Social Service, Nursing Education, PMR, and Special Services joined up one after the other and the so-called Integrated or Coordinated Treatment Program became inaugurated.

It was made clear from the very beginning that the purpose of these meetings was not only the integration and coordination of all hospital activities for the welfare and benefit of the patients but also the testing of the realistic applicability of the following two basic axioms:

1. Every patient can be helped even though not cured.

2. Every member of the therapeutic team can contribute to the patient's improvement or restoration.

1. The *first* principle has been elaborated before. It consists of the realization of the following points:

a. Patients, no matter how deteriorated, still retain some normal or healthy aspects of their personalities.
b. They still possess positive assets.
c. They still maintain some remnants of their human dignity.
d. They still have some responsibility for, and limited choice between, sickness and wellbeing.

The assets, their "still normalness" may be less than minimal, hardly noticeable, but there is always the possibility to increase and to continue increasing them. There is a limit to their growth, but any growth is a promise for further development.

2. This leads us to the *second* basic axiom:

a. Every result accomplished by the personnel is an incentive for additional accomplishment.
b. Each accomplishment is a never-ending satisfaction for those who were instrumental in its attainment.

These principles impose upon us the commanding awareness that the patient is the hero of the hospital drama and that his conflicts and needs, his desires and expectations, his hopes and aspirations are the most trenchant factors of our therapeutic motivation.

Not only the patient has to adjust to the hospital environment but the hospital's attitude has to be modified according to the number, the composition and the characteristics of each new patients' group. For failures in therapy, do not blame the patients; blame yourself. Blame yourself for your lack of knowledge, for your inability to adequately understand the patients' difficulties, for your own hesitancy and therapeutic insecurity.

Malignancy is not necessarily the criterion of a serious pathology, rather it is the indication of our therapeutic ignorance and helplessness. Should we be able to explain and account, diagnostically and therapeutically, for conditions of "alleged worst prognosis," the outcome would clearly defy our preliminary predictions. The new "antibiotic era" enthusiastically proclaims the approach or the arrival of a new epoch in which therapeutic nihilism is replaced by creative hopefulness and inert resignation is substituted by constructive planning. Why don't we learn from such medical-revolutionary accomplishments?

In summary, the following highlights are offered as the modern meaning of the "total push" concept for consideration in our dealings with psychiatric patients:

1. Even the most severe psychiatric patients retain some aspects of their *normalness*.

2. Even the most severe psychiatric patients retain some aspects of their *human dignity*.[4]

3. Even the most severe psychiatric patients can be made aware of their *responsibilities* for some of their conditions and for their present and future welfare.

4. The therapeutic team must be possessed of the *faith* in the inherent *capacity* of the individual, even the sickest individual, for reconstruction.

5. The therapeutic team must have faith *in their own* inherent capacity of therapeutic helpfulness.

6. The therapeutic team must be dedicated to the

PATRONIZE YOUR ADVERTISERS—THEIR PURCHASE OF SPACE IN THE JOURNAL ACQUAINTS OUR MEMBERSHIP WITH THE BEST. **(See the Directory, page 152)**

faith and assumption that *every individual is worth helping.*

7. Therapy is the recognition of the patient's *total psychological need,* not only by the immediate members of the treatment team but also by the *whole hospital as a therapeutic community.*

8. *Therapy is the resurrection of the patient's total energies, the revitalization and rechannelization of all his somatic and psychological resources, and the instillation of hope, an infectious, genuine and all-embracing hope, without which there is* hardly ever any recovery.

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CORRECTIVE THERAPY IN PSYCHIATRIC TREATMENT

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Corrective Therapy has gained impetus as a desired form of treatment in many neuropsychiatric hospitals. Expansion of the modality, in a relatively short period, has resulted in development of programs adapted to facilities, climate, and local needs. The purpose of this outline is to give a report of the philosophy, scope, and procedures of a Corrective Therapy section in a typical neuropsychiatric institution.

Approximately 300 patients are currently assigned to Corrective Therapy Treatment at this hospital. Three clinics are operating at full capacity and an active program is maintained on several wards.

A Corrective Therapy Program has been formulated with applicable goals in mind for each general classification of psychiatric disturbance. The primary and immediate goal is to set up good inter-personal relationships with each patient, irrespective of his diagnosis, and to give him individual attention. The majority of patients assigned are schizophrenic and can be divided into two behavioral groups; the acutely disturbed and the withdrawn. A brief outline of treatment goals and methods of attaining these goals for various categories of patients is as follows:

1. *Corrective Therapy for Disturbed Patients.*

A prominent treatment goal of Corrective Therapy at this hospital is to provide adaptable situations for the acceptable expression of aggressive tendencies. Patients are led into socially acceptable forms of behavior involving forceful physical expression. Punching bags, training bags, bicycles, rowing machines and weights provide unrestricted outlets for release of pent up tensions and hostilities. These patients are brought to the clinic in groups of eight to ten. In moderate situations an effort is made to direct the disturbed patient into games in which hostility can be expressed through competition.

In order to reach some of the acutely disturbed patients a program is in operation within the ward. This has proved successful and good results have been attained. When first referred, many these patients require restraint with wrist cuffs and belts. Yet, participation in physical activity is accomplished with rare episodes of open hostility. A portable gymnasium on wheels, consisting of punching bag, basketball goal, balls, weights, horseshoes, quoits, etc., is used to serve these wards. The therapist employs a casual approach to induce spontaneity on the part of each patient. Those in wrist cuff and belt restraint engage in simple activities such as passing a volley ball. When these individuals display less antagonism they are advanced to more advanced socialization activities within the clinic.

II. *Corrective Therapy for Withdraw and Regressed Patients.*

A major treatment aim for many schizoprenics is motivation. Many in this classification have regressed to childhood levels. The Therapist places himself on a comparable plane by engaging them in such activities as "playing catch" and gradually reaches a higher standard of achievement such as basket shooting and related activities. Basket shooting has proved to be utmost value in motivation. Pleasure and satisfaction derived from this activity in Public School Physical Education classes shows definite "carry over" values. Many patients who show little or no response to most activities are spontaneously attracted to this treatment phase. Other "carry over" athletic skills are also instrumental in re-inducing activity on the part of many patients. The so-called "sitters" invariably have been

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stimulated to some form of response when exposed to Corrective Therapy.

The desire to be accepted and to be wanted is inherent in schizophrenic patients. Yet, feelings of rejection and personal inadequacy force these persons into withdrawal. These patients are inspired by the therapist to do things in which they can achieve some form of success. They are also given opportunities for narcissistic gratification by learning new motor skills or becoming proficient in skills previously known. Participation is encouraged and the therapist avoids criticism for inept performance or mistakes. Commendation is in evidence for accomplishments in warranted situations.

Socialization is generally considered of utmost importance in psychiatric treatment. This is accomplished through games on a low organizational level advancing to the more complex. (This group includes tag games, simple relays, ring toss, etc.) In many situations, exercise is made secondary to patient's prevalent need for verbalization. The therapist allows patient's free mental catharsis by always being a sympathetic listener.

A natural human response when one is tense, apprehensive or angry is to engage in some muscular activity such as pacing the floor or striking a fist on the table; some form of easement is thus gained. Patients expressly referred to Corrective Therapy for relief of tension are provided opportunity for such assistance through large muscle activities in which the total physique can respond. These activities include bicycle riding, tumbling, wrestling, weight lifting and related activities.

Some prescriptions are given for the purpose of relieving feelings of guilt. These individuals try to punish themselves in many ways, some of which might be fatal or injurious to their physical well being. Acceptable media for the self-imposed punishment of these guilt feelings are attainable in an exercise atmosphere. These patients are directed into tasks of a repetitious and monotonous nature or may be given heavy physical chores such as lifting weights. Care is taken to prevent trauma or excessive strain.

A major objective of Corrective Therapy is to give the patient attention. With this in mind, the therapist's attitude is one of encouragement and inspiration. He endeavors for good transference relationship through kindness and reassurance.

III. *Corrective Therapy for Infirm Patients*

Corrective Therapy for infirm patients, at this hospital, has been on a limited scale but indications are that more will be done in the future. Thus far activity has been limited to the wards except for a few individual cases sent to the clinics. Activities of a simple nature such as catching and tossing a volley ball have produced the best response. Generally, most of these patients are impassive and apathetic, but motivation has been achieved with a fair percentage of the group. Effort has been directed to counter vegetation and postpone senile invalidism.

IV. *Correct Therapy for Neuropsychiatric Patients with General Medical and Surgical Conditions.*

Neuropsychiatric patients with neurologic and orthopedic conditions are treated along the same lines as they would be in a general hospital. Situations arise in which contact is limited or where the patient is lethargic or impassive to any form of therapeutic assistance. In other instances good response and cooperation is obtained. Of special note is the fact that mitigation of mental symptoms can be anticipated in concomitance with improvement of the physical disability. One paraplegic at this installation displayed a definite decrease in aberrant behavior with each accomplishment in ambulation.

Heavy resistive exercises are utilized for the multiple sclerotic patients. Drugs are administered by some physicians in conjunction with the exercise schedule. An effort is made to give these patients assignments in which coordinative movements predominate.

The largest group of neurologic patients given Corrective Therapy are hemiplegics. The conventional methods of resistive exercise, pulley therapy and ambulation techniques are employed. Many of this group have had upper motor neurone lesions of long duration with the customary residuals of contractures, ankylosed joints and muscle atrophy in need of correction prior to ambulation attempts. Generally following a period of treatment, self-care is no longer a problem with this group and varying success in ambulation is now a reality.

Disabilities of a conversion hysterical nature are treated as though they were true neurological involvements, while the patients are undergoing specialized psychotherapy.

V. *Corrective Therapy for Post Shock Patients.*

All patients receiving electroshock treatments are assigned to Corrective Therapy. The procedure at this hospital is to give the patients breakfast after the EST treatments and then provide for their therapeutic exercise.

At such times many of these persons are in a slight stuper and are troubled with muscle soreness. To alleviate these conditions the group is given modified calisthenics for a short period, and later individuals are directed to various forms of apparatus such as bicycles, rowing machines, weights and so on.

If time permits and if the group isn't too large, individual attention is given to those who will not participate at their own volition. Conversely, the hyperactive individuals are directed into activities best suited to their temperaments. The last 15 to 20 minutes of

the period are utilized for activities of a socializing nature such as ping-pong, badminton, quoits, miniature bowling and other similar games. Immediately following the Corrective Therapy period, the group receives stimulative hydrotherapy in Physical Therapy.

VI. *Corrective Therapy for Patients Receiving Psychosurgery.*

An intensive program for post-lobotomy patients has been in operation for the past year. The group (averaging 20 patients) has a full daily schedule which includes an hour of participation in Corrective Therapy.

Extreme individual differences have been noted in this group ranging from complete indifference and lack of interest to excessive hyperactivity and hostility. The majority has been amenable to treatment and has responded well in Corrective Therapy.

To cope with the individual differences of the post-lobotomies, procedures mentioned previously in this outline have been followed. Those acutely disturbed are diverted to activities in which they can express their feelings of aggression in an acceptable manner. The regressed individual begins with activities of a simple nature and an effort is made to advance him to higher levels. Socialization games are promoted between patients or they voluntarily compete with each other. This spontaneity is encouraged in order that the therapists might spend more time with the patient in greater need of motivation or attention.

In socialization procedures it has been found practicable to divide the group into sections in order that each patient can engage at his competitive level. Games of lower organization are thus provided for the regressed group, and activities requiring quicker responses and higher intellection for the advanced group. Games such as "three deep" and "stake snatch" have proved popular and therapeutically beneficial to the latter group.

Experience has shown that the most satisfactory results in treatment have been attained when each clinic is staffed with at least two therapists. This not only provides more intensive individual attention but is also a necessity as a safety factor when disturbed patients are in attendance.

It is difficult to precisely measure the contributions that Corrective Therapy yields in mental rehabilitation. Yet, measurable behavior, such as reduced hostility of the disturbed and increased participation of the withdrawn, has convincingly demonstrated the valuve of this modality to the total treatment picture.

"From Other Journals"

"An Activity Program for Insulin Patients," *Department of Medicine and Surgery, Information Bulletin, Psychiatry and Neurology Division, Veterans Administration,* IB 1-29, 9, October 1952.

Insulin coma therapy was initiated at VA Hospital, Lexington, Kentucky, in 1948, with a group of five patients. Within 2 months this group was enlarged to include twenty patients and has remained that size since that time.

With the establishment of insulin therapy, there was instituted an activity program for the group. Local circumstances permitted the use of educational and corrective therapies in this particular program. General objectives were: (1) to provide an organized off-the-ward program encompassing a wide variety of activities, both physical and mental, to meet the individual needs and interests of the group; (2) to provide an atmosphere designed to cement group relationship and understanding of the problems of the group; and (3) to learn as much as possible about the behavior of this group of patients.

The insulin activity prgram is an integral part of the over-all "Master Schedule" of the hospital. Patients receiving insulin receive individual prescriptions for activity treatment. The ward physician is directly responsible for the prescription and for supervising the treatment administered by the therapists. Treatment begins daily 2 hours after termination of the insulin reaction and continues for 4 hours. The schedule begins at 12:30 p.m., when ten of the twenty patients are brought to educational therapy for an hour. The remaining ten patients have an hour period of relaxation and recreation on the ward. At 1:30 p.m., the two groups reverse the order of activity participation. *The same therapists and the same aides are with the patients daily.*

The physical facilities in educational therapy furnish a cheerful and restful atmosphere. The personnel have designed a program to instill confidence, provide motivation, reduce anxiety, and promote unity of the group through socializing activity. Programs designed for resocialization purposes are: (1) current events and quiz discussion sessions, and (2) selected general interest educational films. Numerous subjects in the academic, business, and technical fields, plus instruction in sketching and painting, are used to satisfy individual desires and needs. Educational therapy also provides paper, typewriters, pens, and pencils for personal use in writing letters, etc.

All patients receive a mid-afternoon meal. Hospital volunteers give valuable assistance in the educational therapy program and help with the recreational activity on the ward.

Corrective therapy is a third phase of the program. The gymnasium and swimming pool are used simultaneously. All activities here are carefully coordinated with the ward physician because of the physical activity involved.

Backstops and goals have been erected at each end of the pool for small group activity and games. Patients are encouraged to swim and engage in water exercises and group activity. Exercises, such as stationary running, push and pull, leg kick, thigh touch, down kick, down sweep, pronate and supinate, straddle hop, arch and float, standing jump, trunk twister, water basketball, and water volleyball, are used.

The corrective therapy gymnasium contains equipment for exercises and activity with medicine balls, punching bags, rowing machines, trainer bicycles, wall pulley weights, shoulder wheels, parallel bars, side horses, wrist rotators, hand grips and chest expanders, weight lifting apparatus, skip ropes, table tennis, and shuffleboard. Such activities for the insulin patients improve body metabolism, minimize obesity, develop group spirit, and stimulate confidence in self.

Progress records on reactions to activities and exercises by the patients are carefully compiled by the therapists for forwarding to the ward physician. Informal conferences are held between

physician and therapist relative to improving or modifying treatment for the individual patient.

The special activity program for patients undergoing insulin coma therapy has demonstrated its effectiveness as an adjunctive therapy through its emphasis on resocialization, motivation; relaxation, recreation, and physical fitness as necessary factors in the recovery process.

RESEARCH COMMITTEE, "How to Plan a Paper" and "What a Paper Should Contain," *American Association of Rehabilitation Therapists,* Vol. 2, No. 12-3, Dec. 1952, "HOW TO PLAN A PAPER."

The prime requisite for a good paper may be expressed briefly as follows: (1) It must treat some problem, or subject, of direct interest to a substantial group of readers, and should be written as though addressed directly to that group. (2) It should define the problem clearly and state why it is of current interest. (3) It should give pertinent discussion or a solution of that problem and should be confined to the chosen subject. (4) It should give briefly some proof or other evidence supporting the solution or recommendations.

"WHAT A PAPER SHOULD CONTAIN."

In general the contents of a paper should be organized as follows: (1) Title (2) Introductory Summary (3) Body (4) Illustrations and Tables (5) Appendixes (6) References (7) Acknowledgements.

These points are discussed in detail.

RESEARCH COMMITTEE, "Do's and Don'ts for Writers," *American Association of Rehabilitation Therapists,* Vol. 3, No. 1-3, Jan. 1953.

The research committee recommends the adherence to fourteen points in the do's and don'ts for aspiring writers. These include: (1) Accuracy in a manuscript will obviate the necessity for making costly corrections to proof. (2) Avoid personalities. With the passing of time, personalities become only amusing, if they remain interesting at all. (3) Prefer the concrete to the abstract; the direct statement to the indirect.

JOHN EISELE DAVIS, "The Adolescence of Corrective Therapy," *Mental Hygiene,* XXXVI:548-559, October, 1952.

Corrective Therapy is emerging in a hospital environment as a development of a most realistic rationale of activity in relation to treatment. Progressive medicine gives exercise and activity the dignity and status of essential components of treatment. The techniques of progressive medicine must be explained to the public; the corrective therapist must not only treat patients but must explain what he is doing. Industry is becoming sensitive to the relationship existing between production and the emotional problems of the workers. Corrective therapy must become a part of the progress of industry as well as the progress of medicine. More people are living longer. The increased number of older persons will require exercise and activity for their health. An increased number of chronic invalids may be expected from their ranks. The corrective therapist will have great opportunities for service in the field of geriatrics and gerontology. Corrective exercise must assist the patient to develop his own potentials. Corrective therapy is entering a cycle of constantly changing concepts of treatment in which more precisely formulated applications of exercise and activity are required. Its eventual worth will be determined in the field of clinical practice. Corrective therapy, utilizing the dynamic modalities of exercise, activity and interpersonal relationships, has an opportunity for service that will undoubtedly increase with the passing years.

PJR

HAROLD L. UPJOHN, JULIA A. SHEA, FREDERICK J. STARE, LOU LITTLE, "Nutrition of Athletes," *Journal of the American Medical Association,* March 7, 1953, 151:818-819.

Feeding an athlete is basically no different from feeding an average citizen. The athlete must reach or maintain the bodyweight he and his coach consider will provide maximum efficiency. A written record of body weights obtained under the same conditions should be kept weekly, not oftener. Protein needs are governed by rate of growth rather than by activity. Protein, milk, vegetables, fruits and enriched and whole grain breads and cereals should be included in the daily diet. Vitamin supplements are an unnecessary expenditure. As long as the protective foods are not neglected and weight is maintained at the desired level, cakes, pies and the like are not harmful. Generally it is not good to eat immediately before or after exercise. A supplement of sugar is not required during a game, but there is no evidence to contraindicate a judicious amount of fluids during a contest.

R. C. OLDFIELD, "The Analysis of Human Skill," *New Biology* No. 13, London: Penguin Books, October, 1952, pp. 49-60.

For many years psychologists treated skills as if they were of the nature of habits. However, habit demands conformity to a prescribed, standard sequence of motor acts, while in skilled behaviour the same act is *never* repeated. What we learn at tennis is not a set of strokes, but how to *make* strokes appropriate to the moment. Experimental studies on subjects in a dummy aeroplane cockpit show that the unskilled subject, or a skilled one who is tired, will allow considerable change to take place before he starts any correction, whereas the skilled subject will detect slight departures and immediately initiate appropriate control movements. The skilled subject will make a control movement appropriate in velocity and acceleration to the observed changes. This implies that as well as perceiving a change has taken place, he estimates also its rate. The unskilled or tired performer notes rather late that a change has occurred and makes a movement which, being hurried, tends to overshoot. This causes him to make a violent correction, which is also liable to go too far. The skilled performer, by taking account of the *kind* of external disturbances that are present, is enabled to *anticipate*. The question arises: what kind of a mechanism is it that produces motor acts which tend as efficiently as possible to minimize the discrepancy between intention and performance? This question cannot yet be answered.

"Joint Meeting of Orthopedic Associations," *The Lancet,* II:81-82, July 12, 1952.

Mechanisms of Gait

Prof. John Saunders reported human locomotion is an exceedingly complex process to analyze. Compared with a simple compass model, the body modifies the movement of the center of gravity by pelvic rotation, which reduces the required range of flexion and extension at the hip; by pelvic tilt, by knee flexion on the weight-bearing side, by providing subsidiary arcs at forefoot, heel and knee, and by normal femorotibial angulation. These combine to make the legs 2½ times longer functionally than in reality, and to limit the excursion of the center of gravity to the confines of a 2-in. cube.

Dr. Verne T. Inman studied the energy expended in raising and lowering the center of gravity during locomotion. High heels, like fused ankles, caused little change, though accompanied by increased knee flexion and pelvic roll. The fixed knee required more energy output. The below-knee amputee was relatively normal from this point of view, but a thigh amputation required 27% greater energy expenditure. Such a patient in effect walked 5 yards to another man's 4; this must be considered in supplying an artificial limb to a cardiovascular invalid after ambutation. Energy is also expended in walking in producing oscillations of the legs, two-thirds deriving from the foot and ankle and one-third from the hip mechanism, the knee merely absorbs and dissipates energy.

Dr. Beckett Haworth commented that the quadriceps mechanism was the first to fail in leg strain.

PJR

ROGER D. REID, "Bacteria, Bombs, and Bullets," Office of Naval Research, *Research Reviews,* April, 1953. Pp. 1-6.

Modern bacteriological warfare is designed to cause disease or famine. Anti-personnel agents may be selected according to whether the objective is the death of many people or to make the enemy ineffective by causing much illness. Its use as a purely tactical weapon appears very unlikely, as the action of germs is slow. Against animals and crops, BW assumes a potent significance, but there is the drawback that the spread of microbes might not stop at the enemy's border. The significant factor in the use of BW is psychological. Regrettably, some of our people have a fear of BW comparable to fear of the A-Bomb. *In B-W we must also fear the very fear of BW.* Because of the current propaganda campaign of the Communists, research in BW is being intensified. We feel sure we will be able to deal effectively with a BW attack. As an important by-product of BW research, it is a good bet that there will be fewer epidemics, fewer infections and better knowledge of epidemiology and infectious diseases. Our farms will become more productive, foods more nutritious and our general standards of health and living improved.

(*Continued on Page* 146)

Editorials

MILESTONES

Motoring along the Blue Ridge Parkway in Virginia or the Skyline Drive in the Colorado Rockies, we pass many milestones. The distance traveled is readily determined. These indicators of distance are fixed symbols of measurement.

The Seventh Annual Scientific and Clinical Session of the Association For Physical and Mental Rehabilitation is another form of milestone, measuring the progress of group effort. These meetings of the organized group survey the more intangible quality of human accomplishment and set new standards and goals for accomplishment.

The first milestone of this Association was the organization meeting at Chicago in June of 1947. Here the decision to unite and serve the handicapped through the medium of active exercise, applied with common sense, and adapted to the tolerance and capacity of the disabled, was made.

The second milestone was set at the St. Louis meeting in June of 1948. This meeting marked the decision to develop adequate standards of educational and clinical experience. The Educational Standards Committee has been actively engaged in bringing about the adoption of qualifications for exercise therapists that have been accepted by the U. S. Civil Service Commission.

At the New York Convention in 1949, much attention was given to the type of professional Journal to be published by the Association.

Our next important effort, was in shifting some of the emphasis from the scientific paper, to the demonstration of the techniques of Corrective Therapy, especially in the treatment of patients with paraplegia. This was at the Memphis Convention in May 1950.

A return to the emphasis on the scientific paper, was the milestone dedicated at the Los Angeles Convention in July 1951.

At Milwaukee, in July of 1952, the conference theme: "Dynamic Medical Rehabilitation, Adjustment and Employment of the Disabled," brought together leaders in the fields of medicine, industry and physical education. The role to be played by the ancillary therapies was thoroughly explored in the panel type of program.

Human history has demonstrated how man ranks pleasure among the necessities of life. *Medicine* deals with prevention, diagnosis and treatment of disease and disabilities. *Corrective Therapy* is concerned with the restoration of man's physical and mental abilities, to enable him to make optimum use of what he has left. *Industry*, providing employment opportunities, completes the picture of new horizons in restorative medicine.

With the Seventh Scientific and Clinical Session to be convened in Washington, D. C., from July 20 to 24 inclusive, another significant measurement of distance traveled, will take place. Here, we will see the combination of the scientific paper and demonstrations. Here we will see the Association move forward as a non-profit Association For Physical and Mental Rehabilitation, incorporated in the State of New York.

Milestones all. Each year new goals have been set. At no time has the Association membership lost sight of its fundamental purpose.

As our Association "motors along the highways," let us not get lost in the valleys of misunderstanding and controversy. In the deliberations of the House of Delegates, let the full meaning of the statement — "Not failure, but low aim is crime" be our measuring rod, as we plan to erect another milestone in 1953.

THE NEXT HURDLE

As Corrective Therapy passes through its adolescence and the more sober demands of maturity become evident, the need for a more scientific approach to therapeutic exercise is inescapable. Clinical evidence for the value of physical activity in restoring function and overcoming handicaps indicates that the Corrective Therapist can make a definite and valuable contribution to the Physical Medicine and Rehabilitation team. Most physicians and allied professional personnel will admit the value of exercise. But their opinions of this value vary. And this difference of opinion would apply even more to exercise directed toward specific disease entities, than to activity in general where Physical Educators have made notable progress. As experts and specialists in the field are we qualified to supply the answers?

Empiric observations of patients we have treated have convinced us, as well as those physicians with whom we have worked closely, of the contribution we have made toward the total rehabilitation of patients. Furthermore, the enthusiasm we display for our specialty, based in large measure upon the excellent rapport established with patients who have overcome numerous handicaps, is sertainly understandable and justified. But, as professionals who must convince other professional people of our worth, in order to allow for the growth and development of

Corrective Therapy within and outside of federal service, is this personal conviction and enthusiasm enough? The answer is obviously no. Where is our clinical evidence? What are our criteria? Do the tests and measurements we employ meet the basic requirements of validity, reliability, objectivity, and simplicity? What standard deviations are established for the results we indicate? It would be rather awkward for Corrective Therapy to attempt to answer these questions now.

These few brief statements should be sufficient to awaken us to an awareness of the danger of this weak link. Yet for those Corrective Therapists who are veterans of the struggle for status and recognition, there is still another item to be considered. At recent semi-official meetings our leaders have been assured that "Corrective Therapy is here to stay." This is welcome and important news, and certainly cause for joyous relief. But is it enough? How are we regarded by our colleagues in rehabilitation? Are we referred to as "muscle men" or are we respected as professional equals? Here again precise observations and clinical research can be important factors in establishing our position as equals on the Rehabilitation team.

An example of how this problem can be met is seen from a project on the treatment of the arthrotomized knee, which was recently completed at a well known Veterans Administration Hospital. Almost everyone on the Corrective Therapy staff took a keen interest and participated actively in the testing and measuring, as well as in the administering of therapy to these patients; and many notable contributions to the effectiveness of the program were made by various therapists. Psychiatrists and Orthopedists gave impetus and invaluable guidance to the project.

In this study, two fairly similar groups of patients who received knee arthrotomies were tested and measured at periodic intervals. One group had instruction in the traditional post-operative exercise program; the second group received a specially devised post-operative treatment routine. After careful follow-up studies and unbiased classification of the results of these different forms of treatment, definite conclusions could be drawn on a scientific basis. In this manner the precise contribution of therapeutic exercise following knee arthrotomy was evaluated. The worth of this project is further demonstrated by the fact that Columbia University has seen fit to accept this project as a basis for a potential doctorate thesis.

The opportunity to develop objective measurements and to do clinical resarch within our profession is not confined to the Orthopedic Service. Opportunities are abundant in the Neuropsychiatric Service, the Surgical Service, the Neurological Service, the field of Hydro-gymnastics, and in every other area from which patients are referred to us. However, this challenge does require that we raise our sights and broaden our horizon. It behooves every Corrective Therapist to consider this need seriously and to determine how he personally can make a contribution to his particular area. We have established the profession; we must now give it its proper dignity and respect.

O. H. C.

REHABILITATION AS AN INVESTMENT

(Taken from the Rehab Counselor of the Vocational Rehabilitation Division, Tennessee Department of Education)

The disabled worker who can no longer work, becomes in many cases, a public charge and so does his family. Last year our nation paid approximately $395 million as disability payments to approximately 575,000 disabled men and women. And Dr. Rusk noted in the New York Times (Sept. 14, 1952), "Sizable as these figures are, they are only a part of the cost picture of disability in our nation. To them must be added the costs of thousands of chronically ill in hospitals across the nation, many of whom could be rehabilitated and restored to productive jobs."

Yet a relatively modest expenditure—which need never be repeated—can measurably lighten the burden on the taxpayer. A case in point, described by Joe Alex Morris in the Saturday Evening Post (Apr. 14, 1951), is that of a young couple in a New York City hospital. The man, a victim of arthritis, had been in the hospital, a charge of the city, for five years; the woman had been in the same hospital for four years with a broken back. In seven weeks, he was taught to walk with crutches and to care for himself. The day he left the hospital he got a job. With three months' training, she learned to walk with crutches and braces. Later they were married. "At Goldwater," Morris writes, "the two had cost the taxpayers $36,000 in five years. If they had remained there for their normal life expectancy, they would have cost another $108,000 at least, and both would have spent miserable lives. Their training and equipment—braces, wheel chair and crutches—cost less than $2,000."

Moreover, a rehabilitated worker becomes a positive financial asset, for he is transformed from a drain on public funds to a contributor to them. It's been estimated that within four years the 66,000 workers who were rehabilitated in 1951 through the Federal-state vocational rehabilitation program will pay back to the Federal treasury in income taxes every dollar that was spent to retrain them. During the rest of their working lives, they will pay back an estimated $10 for every dollar spent. "Few investments pay so well," Rusk has observed.

"Rehabilitation is an Investment"

Chapter Activities

OHIO-KENTUCKY CHAPTER

Bottom row first, left to right: Earl Mason, Dr. B. Sutton, Dr. L. Rosenberg, Dr. H. Zankel, Worth Randall, Mark Howett, Dr. D. Mattarella, James Strausbaugh, Dr. I. Muss, William Wilde, Richard Betz, Robert Davis, Joe Rubel, Mr. Watson (Hanger Appliance Company representative), Arthur Landy, H. Stephens, Michael Riley, Emil Chiavin, Mr. Clemons (Hanger representative), Charles Castle, Richard Yehl, George Jurcisin, Dr. A. Daniels, Clarence Sutter, Robert Kohler, Nick Wanchic, Paul Erickson, Rev. C. Wynkoop, James R. Rosenfield.

The Ohio-Kentucky Chapter convened for their semi-annual meeting on Saturday, March 28th at the Veterans Administration Hospital, Chilicothe, Ohio. Representative groups present, were from Lexington and Louisville Hospitals in Kentucky and Chillicothe, Crile and Dayton VA Hospitals, in Ohio.

The Corrective Therapy Section at the Chillicothe Hospital was host to the group consisting of forty physicians and corrective therapists throughout this two-state area.

Chairman for this meeting was Mr. Robert L. Davis, Supervisor, Corrective Therapy at the Chillicothe VA Hospital.

Dr. H. H. Botts, Manager of the Chillicothe VA Hospital, welcomed the members. Dr. Botts discussed the progress in medical treatment during the past thirty years and of the contribution that Physical Medicine and Rehabilitation is making in present day treatment. Dr. Botts stated that he felt all employees were a definite part of a therapeutic "team," each employee having their particular job on that team. He stated that Corrective Therapy as a specialized treatment procedure makes a definite contribution in helping bring about the patient's psycho-social improvement.

Dr. Robert Albrecht, Clinical Psychologist at the Chillicothe VA Hospital discussed the "Psychological Aspects of the Treatment of Patients Assigned to Corrective Therapy." He suggested that many basic principles of psychology are used in the field of psychotherapy and that these same principles can be applied by the corrective therapist to assist the patient. Understanding the feelings and the needs of the patient is important to the worker, who must continually re-evaluate the progress that is being made by the patient and set his goals accordingly.

Continued stress upon the importance of Corrective Therapy as more than a mere athletic program must be made. The observations made by the Corrective Therapist are important in the total hospital situation, and patient progress should be evaluated and reported. He also mentioned the value of continued research in the various aspects of the Corrective Therapy program.

Dr. Daniel Atoman, Chief of the GM&S Service at the Chillicothe Hospital in his discussion of the "Treatment of the Hemiplegic," point out the contribution that Corrective Therapists are making in the treatment and rehabilitation of these neurological patients. He discussed the corrective measures to be taken, and the treatment program performed by Corrective Therapy in realizing maximum benefits for those patients prescribed for treatment.

In his talk, "The Use and Value of Corrective Therapy in Psychiatric Treatment," Dr. Henry Luidens, Chief, Professional Services, Chillicothe VA Hospital, emphasized that in psychiatric treatment patients must be stimulated to thinking in terms of general welfare before genuine progress is noted. Aiming individualized activity should always be constructive and purposeful so that the patients will be able to successfully project their thinking away from themselves.

Dr. Arthur S. Daniels, Professor of Physical Education at Ohio State University, Columbus, Ohio in his speech, "The Corrective Therapist Looks at Himself and His Work," believes that the basic modalities of exercise and movement employed by Corrective Therapists enable college students assigned to such a program at Ohio State University, to make psychological and social adjustments in the group situation. This constant reappraisal often tends toward raising their own self esteem and understanding. He also spoke of the successful use of Corrective Therapy in the Armed Forces Convalescent Centers and discussed the general progress of Corrective Therapy.

Mr. Wesley Clemens and Mr. George Watson, representatives from the Hangar Limb Company, Columbus, Ohio presented some of the latest developments in prosthetic appliances. Artificial legs, arms, and hands were demonstrated.

A delightful luncheon was prepared by the wives of the local corrective therapists; namely, Mesdames Castle, Davis, Jurcisin, Landy, Strausbaugh, and Sutter.

The program concluded with the business meeting. Advance notice of the 1954 National Convention site was served by the Cleveland group who will be host when the Association for Physical and Mental Rehabilitation meets there next year. All the groups present signified their intentions of attending the National Convention ot be held in Washington, D. C. from July 20th-24th of 1953.

Excerpts: Address of Welcome—H. H. Botts, M.D., Manager

As manager of this hospital, I am happy to welcome you folks. This hospital conslders it quite a compliment that so many of you, from so many different places, have come here to have your meeting. We hope you will feel free to use this hospital as a meeting place whenever you desire.

At this hospital we have some ideas about the treatment of mental disease which differ slightly from those at some institutions. We take the point of view that every employee is a member of our therapeutic team.

I'd like to contrast the situation today with what it was twenty or thirty years ago. In those days we had our "descriptive psychiatry." We only touched the surface. We merely described the patient and let it go at that. We were interested in diagnosis for the purpose of compensation rather than treatment.

Patients received very little treatment. There was a little "O.T." and a little physiotherapy. Patients were fairly well fed and clothed; but our mental hospitals were little more than domiciliary institutions.

As time passed, instead of merely noting the symptoms of their illness, we began to think about human behavior and mental mechanisms. We began to ask ourselves why our patients did what they did, when did they start doing these things, and how long had their behavior been considered abnormal. We began to understand our patients.

A few years ago our clinical director and I made a little study to find out what our auxiliary services contributed to the successful treatment of patients. Naturally we soon discovered that they contributed a great deal. Then, after World War II, when our Physical Medicine Rehabilitation Service became organized and divided into departments—and each patient was studied and appropriate therapy prescribed—we really began to get results.

Before that, the few activities in which patients engaged presented a somewhat dismal picture. I remember seeing a patient who sat and wove rugs for fifteen years. The work wasn't graduated, so that patients could improve their skills by moving gradually from simple to more difficult work. Patients just sat and did the same things over and over, day after day, year in and year out. They put in their time at the hospital, and there most of them died.

Despite this so-called treatment, a patient occasionally recovered—but we didn't know why. During the past few years, however, things have changed. Our recoveries have gone up rapidly. Formerly we had only an occasional recovery; now we have some fifty or sixty each month.

The reason for this is that we have broadened our treatment program. We have gradually come to consider more and more of

our hospital personnel as members of our therapeutic team. We now have reached a point where we consider every employee a therapist. It is our belief that every employee—whether he be a psychiatrist or an aide, a farm supervisor or a plumber—adds something to the care and treatment of our disabled veterans.

We believe that this not only speeds up the treatment of our patients but also makes for a much better spirit among employees, all of whom tend to do better work when they feel that they are contributing to the patients' recovery.

Now you folks in Corrective Therapy are a bright spot in our total setup. I think you realize that you are doing marvelous things; but, in my judgment, you are accomplishing even more than you realize.

It is true, of course, that we've had a lot of improvements on the purely medical side, such as the development of shock therapy, lobotomies, and similar treatment. But, after all's said and done, you folks in "C. T." have a very important place in this scheme of treatment. As manager of a hospital, I certainly could not hope to get results if I didn't have Corrective Therapy.

You have been doing a fine type of work. Through your activities, the treatment of psychotic patients has advanced. Psychiatrists have recognized this, and have accepted you as an important part of medicine.

You've probably noticed that there is now a tendency to group more and more services under the medical department.

This is being done because, from a medical point of view, they feel that these activities are quite worth while. We can be assured that any group which has been accepted by the medical people is sure to become an important element in the treatment of psychotic patients.

MID-WEST CHAPTER

The fifth meeting of the Mid-West Chapter of the Association for Physical and Mental Rehabilitation was held at the University of Illinois, Urbana, Illinois, on Saturday, May 16, 1953. Therapists from as far distant as St. Louis, Milwaukee, and Indianapolis braved an all-day rain to attend. The session opened with a tour of the university's large and elaborately equipped corrective clinic headed by Mr. Robert E. Shelton, Associate Professor of Physical Education at the university, and one of the vice-presidents of the National Association. Professor Shelton directs an undergraduate course of studies for Corrective Therapists in the Department of Physical Education.

The remainder of the morning was devoted to business and election of the following chapter officers for a two-year term: President, George E. Nash, VAC, Wood, Wisconsin; Vice-President, Rollie Gagnon, VA Hospital, Hines, Illinois; Secretary-Treasurer, Kenneth J. Thornton, VAC, Wood, Wisconsin.

Following luncheon at the Moose Lodge, Champaign, Illinois, Dr. Donald Ross, Orthopedic Surgeon, Christie Clinic, Champaign, Illinois, presented an exceptionally practical talk on *The Physician and Practice of the Corrective Therapist*. He and Dr. Peterson, also of the Christie Clinic, then conducted a discussion period on the subject.

Later during the day, reports on the National Association's Executive Board Meeting in Washington, D.C., were given by Harold M. Robinson, incoming president of the Association and Chief of CT at Downey, Illinois; Professor Shelton, University of Illinois; George M. Reichle, Executive Assistant, and Leslie M. Root, Chief of CT, both of Wood, Wisconsin. The chapter voted several recommendations to be presented to the Representative Assembly at the seventh annual convention.

SOUTHEASTERN CHAPTER

The Secretary reports 34 new members, and urges all others to become paid up.

Phil Davis, Southeastern President, attended a recent meeting of the Southeastern Chapter, AART at Oteen, N. C. He reports that they accepted an invitation to attend our Chapter meeting in Augusta, Georgia this fall. This is another example of the cooperative spirit existing in rehabilitation organizations.

Paul F. Fleer, editor of the Southeastern News Letter, is to present a paper at the National Convention in Washington, D.C.

Book Reviews

PHYSIOLOGY OF EXERCISE, by Lawrence E. Morehouse and Augustus T. Miller, 355 pp. $4.75, Second Edition, 1953, The C. V. Mosby Company, St. Louis.

The second edition represents an extensive revision of the earlier text. It has been brought completely up to date by the incorporation of material from World War II and post-war research. In some instances what were separate chapters in the first edition have been combined in order to provide space for new ones. (On page 211 "the 'snap,' the 'clean' and the 'jerk'" evidently should have read "the 'snatch' and the 'clean and jerk.'") The bibliographies at the ends of the chapters have in many cases been lengthened, thus increasing their usefulness to students. The book is notable for the emphasis which it places on developing practical conclusions from the research findings. This is especially well exemplified in the chapter on fatigue, which lists fifty-two measures effective in delaying the onset of fatigue and speeding recuperation. In the opinion of the reviewer, *Physiology of Exercise* is definitely the outstanding text in its field.

PJR

THE TWENTY-FIRST ANNUAL SURVEY OF FOOTBALL FATALITIES: Floyd R. Easterwood, Los Angeles State College. Free.

Football fatalities classified as to cause, position, type of game, formation, etc. Essential information for therapists interested in the problem of athletic injuries.

PJR

PHYSICAL BUILD VS. ATHLETIC ABILITY IN AMERICAN SPORTS, by Paul Brodecker, Chicago: Athletic Ability Publications, 1952. 125 pp. $2.00.

It is the author's thesis that "When individual differences center around the size of the underlying nervous system as they normally do, tremendous variations in ability are bound to occur. Also the body's bone and muscle structure produces work through the many levers that it makes up and differences in the proportion of segments of these levers affect their efficiency." Hence a relationship exists between physical characteristics and the abilities required for success in a given sport. His method of proof is to make a statement regarding a given physical attribute and then list a few top athletes who exemplify it. This is not always convincing. When he says "Associated with champions in ALL sports are . . . very SMALL cheek bones," one wonders where this leaves Thorpe and the other great Indian athletes. When he says "The ideal big league baseball slugger should . . . wear about a six and three quarters' size cap" it is not sufficient to then list a few baseball players "who do not have relatively large craniums." No bibliography is given, and there is nothing in the text to indicate that the author has utilized the findings of anthropometric studies such as have been made on weight lifters by Tappen, or any of the other research in allied fields. There is no indication that statistical techniques have been used to establish validity or multiple regression equations. Information which will assist in guiding an individual into the sport in which he can participate with the greatest chance of success is an urgent need. Mr. Brodecker's system has several points of interest, but much more work will have to be done before it can be accepted.

(Editor's Note: Beginning with the Aug.-Sept. issue, Book Reviews and Abstracts From Other Journals will be selected and edited by:

PHILLIP J. RASCH, 567 Erskine Dr.,
Pacific Palisades, Calif.

Many more readers are needed for this column. Anyone interested in contributing should submit copy to Mr. Rasch by the first of Aug., Oct., Dec., Feb., Apr., and June.)

News and Comments

PRESIDENT URGES REHAB EXPANSION

Increased resources for rehabilitation in both the state-federal program and voluntary organizations was called for by President Eisenhower at the spring meeting of the President's Committee on Employment of the Physically Handicapped. The meeting, which was held in Washington on April 23, was also addressed by Mrs. Oveta Culp Hobby, Secretary of Health, Education and Welfare, and by Mr. Martin P. Durkin, Secretary of Labor.

Mrs. Hobby pointed out that about 64,000 persons (some 10,000 of them from the public relief rolls) were rehabilitated to productive employment last year. Mr. Durkin expressed the belief that labor unions can do more toward increasing job opportunities for the handicapped. He pointed to the record of a number of handicapped employees in his own department as proof of the practicability of rehabilitation procedures for the disabled.

DR. HOWARD A. RUSK RECEIVES $10,000 MUTUAL OF OMAHA CRISS AWARD

Honored at the Annual Dinner of the American College of Physicians in Atlantic City recently (April 16), was Dr. Howard A. Rusk, New York City, winner of the Mutual of Omaha Dr. C. C. Criss Award. Dr. Rusk is shown standing at the left. The award was presented by V. J. Skutt, Omaha, president of Mutual of Omaha, the world's largest exclusive health and accident company, at right, standing. Dr. LeRoy H. Sloan of Chicago, president-elect, Dr. T. Grier Miller, Philadelphia, president, and Dr. Hilton S. Read, Atlantic City, general chairman for the 34th Annual Convention of the College are shown seated, left to right. The award, a gold medal and a $10,000 honorarium, is presented annually as a memorial to the late Dr. C. C. Criss, founder of Mutual of Omaha.

ATLANTIC CITY, N. J.—V. J. Skutt, president of Mutual of Omaha, in presenting Dr. Howard A. Rusk, New York City physician, educator, and writer, the 1952 Mutual of Omaha Dr. C. C. Criss Award, cited him for his outstanding accomplishments in the field of rehabilitation of the physically handicapped.

The presentation was made at the Annual Dinner of the American College of Physicians at the Chalfonte Hotel recently (April 16), with more than 1,000 in attendance. Dr. Hilton S. Read, Atlantic City, general chairman for the 5-day convention, presided.

In presenting the Criss Award to Dr. Rusk, a member of the College for twenty years, Mr. Skutt declared:

"By his great work and that of others which he has inspired, Dr. Rusk has brought hope, courage and ambition to the deserted cripples and lonesome invalids. He has reflected great credit on this noble profession, strengthened his country by strengthening his people, and served his God by helping the unfortunate."

Mr. Skutt further stated, in presenting the Criss Award, consisting of a gold medal and a $10,000 honorarium, to Dr. Rusk:

"We honor you, Dr. Rusk, for your unselfish service to your fellow men, your profession, your nation, and your God."

"It is a great honor to have this presented at a meeting of the American College of Physicians, which to me, in the twenty years that I have been privileged to be a member, has epitomized the best in medicine," Dr. Rusk said, in accepting the Criss Award. He added:

"It makes you feel very deeply to know the Criss Award comes in honor of a man who was many decades ahead of his time in thinking of not only the physical, but the social and economic, problems of people who were devastated by disease; and who, fifty years ago, started a voluntary plan whereby individuals could meet these needs as we have met all of our needs as individual citizens of a democracy."

Dr. Rusk referred to Dr. C. C. Criss, in whose honor the Criss Award is presented annually. The late Dr. Criss founded Mutual of Omaha in 1909.

Directing his remarks to the physicians, Dr. Rusk said that the eyes of the world are on the medical profession. He said:

"In traveling about the world, I have found the interest in our less fortunate sick and disabled fellowman is still a common language and by speaking that language and by keeping the communication open, I feel that we, in our profession, have an opportunity to build the one cornerstone today on which we can build a peaceful world."

Present at the dinner were Dr. Rusk's wife; his 81-year-old mother, Mrs. Augusta Rusk, of Brookfield, Mo.; and his 79-year-old mother-in-law, Mrs. Martha Houx, Marshall, Mo.

Dr. Rusk is chairman and professor of the Department of Physical Medicine and Rehabilitation, New York University College of Medicine; and Associate Editor of the New York Times. He recently completed a rehabilitation mission for the American-Korean Foundation in Korea.

Dr. Rusk was chosen for the Criss Award from a field of 150 nominees by a board of distinguished judges, headed by Dr. Charles W. Mayo, Mayo Clinic, Rochester, Minn.

Winners of the 1951 Criss Award were Drs. Edward C. Kendall and Phillip S. Hench of Cortisone fame.

Dr. T. Grier Miller, of Philadelphia, is retiring president of the American College of Physicians; with Dr. LeRoy H. Sloan, of Chicago, the incoming president.

More than 5,000 physicians from all parts of the nation attended the 34th Annual Convention of the American College of Physicians.

The Criss Award is presented annually to the individual or individuals who have made outstanding accomplishments in the field of health or safety.

EXAMINATION NO. 6778—INSTRUCTOR (CORRECTIVE PHYSICAL EDUCATION)

SALARY AND VACANCIES: At present there are 5 vacancies at $3,260 per annum. This salary includes a cost-of-living adjustment of $550 per annum.

APPLICATIONS: Issued and received from 9 a.m., June 9, 1953 to 4 p.m., June 24, 1953.

Applications are NOT issued or received by mail. You must obtain your application in person at our Application Section, 96 Duane Street, New York City from 9 a.m. to 4 p.m. on weekdays, and from 9 a.m. to 12 noon on Saturdays.

FEE: $2.00.

DATE OF TEST: The written test is expected to be held September 25, 1953. This date is tentative only and may be changed if circumstances so demand.

MINIMUM REQUIREMENTS: A baccalaureate degree issued upon completion of a course of study registered by the University of the State of New York including or supplemented by a major in physical education or physical therapy, with courses in corrective and remedial exercises, physiology, kinesiology, and anatomy, and at least 150 hours of clinical practice working with physically disabled patients in a rehabilitation program of an approved hospital; or a master's degree in corrective physical education or physical therapy. College graduates who have a major in physical education or physical therapy but who do not have the specialized courses mentioned above may substitute one year of experience administering prescribed physical exercises under medical supervision in a hospital or a satisfactory equivalent.

The maximum period of time for which credit may be given for experience gained solely as a provisional employee or for duties performed outside the scope of title in an emergency may in no case exceed nine months.

Training or experience of a character relevant to the duties of this position which was acquired while on military duty or

while engaged in a veterans' training or rehabilitation program recognized by the Federal Government will receive due credit.

DUTIES: Under medical direction to do the following work with physically disabled patients; give exercises to strengthen unaffected specific muscles or muscle groups essential for rehabilitation; conduct gymnastics and calisthenics to assist in developing dexterity, strength, and control; teach correction of posture and balance; teach physical activities of daily living; perform related work.

TESTS: Written, weight 50; performance-oral, weight 50.

In the performance test the candidate will be required to demonstrate his ability to teach the fundamental exercises in corrective physical education. The factors in the oral test will include speech, manner, and judgment.

Candidates must pass a qualifying medical-physical test prior to appointment which will include the following: far vision 20/40, both eyes at once, eyeglasses allowed; normal heart; normal lungs; normal hearing in each ear; no varicose veins; no hernia; no truss allowed; no paralysis; no other diseases, injury or abnormality that tends to impair health or usefulness; normal strength—dumbbells, 35 pounds one hand, 30 pounds the other; broad jump—4 feet.

The pertinent sections of the General Examination Regulations are also to be considered part of this notice.

THE HANDICAPPED WORKER CAN EARN HIS WAY IN INDUSTRY AND BUSINESS

The handicapped worker in American industry and business must be accepted on an equal basis as are all other workers, Paul A. Strachan, President, American Federation of the Physically Handicapped, said in an interview, which went on record strongly opposing all social and economic disadvantages placed upon the nation's some 30,000,000 disabled people.

The handicapped have proved that they can perform a basic service for industry and society by the very fact that they have received in excess of $2,000,000 in wages and salaries in the last ten years. "American industry would not have paid out this huge sum in wages to the handicapped unless they were earning their own way," Mr. Strachan said.

"In the last hundred years, industry has spent billions of dollars on maintenance of equipment and buildings, but not until recently did they begin to think of people, and last of all, they thought of the handicapped.

"The handicapped problem has been treated and regarded as a charity proposition. We have bitterly contested this attitude, working with leaders of the nation along this line. Our success in making inroads against a callous attitude toward the handicapped shows up in the following figures—since the AFPH was launched in 1942, more than 2,000,000 persons with some sort of physical infirmity have been placed in gainful employment through Federal and State employment services.

"The public should stop talking about people in the sense of being blind, amputees, cerebral palsy victims or epileptics, and regard them as full-fledged citizens—as people of these United States who can and are willing to ear their own way.

"The job which confronts the American Federation of the Physically Handicapped is this—every possible effort must be made to integrate the handicapped into the national social and economic structure, not as disabled individuals, but as people. We must make the public understand that they have to accept them as people—and that we have to cooperate with them as neighbors, fellow workers, citizens, and friends.

"We must continue every possible means to afford the necessary medical treatment and education that will enable the handicapped to mingle with the public and to uphold their obligations and self-respect.

"One specific achievement of AFPH was the enactment on August 15, 1952, of the Omnibus Research Act, which provides funds for research in the fields of cerebral palsy, arthritis, poliomyelitis, epilepsy, muscular dystrophy, and other ailments, which contribute so largely to the ranks of the handicapped."

The American Federation of the Physically Handicapped, which Mr. Strachan organized in 1942 and, as President, has since guided its destiny, promotes the hiring of the handicapped. It is the author and sponsor of "National Employ The Physically Handicapped Week," enacted by Congress and now Public Law 176. The first full week in October of each year is set aside for a nationwide campaign to promote employment of the handicapped.

The Federation has a bill pending in Congress, which will establish a Federal Agency for the Handicapped that will handle various phases of this great and complex problem.

(*News release from the American Federation of the Physically Handicapped, 1370 National Press Building, Washington 4, D.C.*)

NEW EVEREST AND JENNINGS CATALOGUE

Its cover dramatically depicting the degree of independence which E & J wheel chairs have provided for the handicapped, a complete new Everest and Jennings catalogue is now rolling off the presses.

In full color, the catalogue contains all the latest improvements and additions to the world-renowned E & J line of folding metal wheel chairs, walkers, and other invalid aids.

The publication of this new catalogue marks the company's 21st anniversary. It was in 1932 that Herbert A. Everest and Harry C. Jennings began making light-weight folding wheel chairs in a small shop at home. These were the first successful folding chairs to be marketed and today there are probably more E & J wheel chairs in use than all other types put together.

Many famous persons are numbered among E & J customers: the late F. D. Roosevelt, the son of England's Lord Halifax, and King Ibn Saud of Saudi Arabia, who has ordered more than a dozen special chairs, most of them with ornate upholstered canopies and seats wide enough for the king to sit cross-legged.

It has been said that Henry Ford put America on wheels with the invention of his Model T. It is equally true that Everest and Jennings folding wheel chairs have brought freedom and independence to those previously confined within the four walls of their home.

Everest and Jennings also announces that they have taken over exclusive distribution of the new Hoyer Lifter.

This portable invalid hoist has been used successfully, in hospitals and private homes, on handicaps of all kinds. The device is amazingly rugged, simple in design, and foolproof in operation. Its uses include lifting the patient from bed for linen change or to place him in a chair, take him to another part of the house, or to the bathroom and place him on the toilet, or to set him on the front seat of an automobile.

With the Hoyer Lifter, even a slight nurse or an aged attendant can lift an invalid weighing as much as 200 pounds with ease and safety. There is little physical effort involved, and no fear on the part of the patient. A few strokes of the hydraulic pump, and he is in the air, comfortable and relaxed in the web slings which form seat and back. When the attendant turns the release valve knob, the patient descends gently.

Orders for the new E & J catalogue and requests for information regarding the new Hoyer Lift may be placed with Everest and Jennings, 761 North Highland Avenue, Los Angeles 38, California.

REPRESENTATIVE WALTER H. JUDD, M.D., BANQUET SPEAKER

Dr. Judd was born in Rising City, Nebraska. He worked on a farm every summer until graduated from high school; then worked his way through the University of Nebraska and Medical School by—dish washing, managing a cafeteria, night telephone operator in a hospital, playing in a band on summer chautauqua circuits and teaching zoology at the University of Omaha.

He enlisted as a private in the United States Army during World War I and was discharged a Lieutenant in the Field Artillery.

In 1925, under the Foreign Mission Board of the Congregational Church, Dr. Judd went as a medical missionary to bandit and malaria-infested South China. He survived the bandits and Communists but repeated malaria attacks during the six years he was there nearly killed him, and eventually forced his return to the United States.

After several months of speaking in churches and colleges warning about the menace of Communism and Japanese militarism, as both were expanding in China, he received a Fellowship in surgery in 1932 at the Mayo Clinic at Rochester, Minnesota; then in 1934 returned to Asia, this time to North China, where for four years he superintended a 125 bed hospital. He and his staff brought the hospital through a Communist revolution and the Japanese invasion, and at the same time improved its work from 33 to 83 percent self-supporting.

When Japan's armies moved into his area he was under their control for five months and saw things which made him feel it imperative that we stop building up the Japanese war machine. He came home in 1938 to carry that message to more than 1400 audiences in 46 states in two years. In January 1941 he took up his medical practice in Minneapolis. After Pearl Harbor, many individuals and groups representing all segments of the community urged Dr. Judd to become a candidate for Congress from the Minnesota Fifth District. He was elected in 1942 and has been re-elected every two years since then.

This rich medical experience qualifies him to present an interesting story of rehabilitation.

MEETINGS OF PROFESSIONAL INTEREST

July 20-24	**Annual National Convention of the Association for Physical and Mental Rehabilitation, Mayflower Hotel, Washington, D.C. Dr. John E. Davis and Mr. Tom Swierlein, Co-chairman, Veterans Administration, Central Office, Washington 25, D.C.**
Aug. 31 Sept. 4	31st Annual Conference of the American Congress of Physical Medicine and Rehabilitation, Palmer House, Chicago, Illinois. Walter J. Zeiter, M.D., Chairman, 30 N. Michigan Ave., Chicago, Ill.
Aug. 31 Sept. 6	The World Medical Association, Amsterdam, Holland
Sept. 7-12	The World Congress of the World Confederation for Physical Therapists, London, England
Sept. 14-19	International College of Surgeons, Hotel Waldorf-Astoria, New York City, New York.

FROM OTHER JOURNALS—

(*Continued from Page* 139)

EDITORIAL, "Restrictions in Heart-Disease," *The Lancet*, Vol. CCLXII, No. 6713:858-859, April 26, 1952.

Climbing stairs is traditionally forbidden to patients with heart-disease, but ballistocardiographic studies have shown that this does not greatly increase the work of the heart, and patients may be allowed to take stairs at their own pace. Deliberate retardation, like hurry, may augment cardiac work. In the presence of congestive failure, or if anginal pain comes on during exertion, stairs should be avoided.

Except for cases of congestive failure, active carditis, cardiac infraction with onset in the previous three months, or severe angina, Dr. Levy does not forbid flying. The hazards in air travel are due not so much to the hypoxia of flight as to the excitements, delays or discomforts incidental to flying.

With the exception of active rheumatic carditis, chronic congestive heart failure or intractable angina, cardiac patients are better off if they are allowed to work. The same applies to exercise; the patient himself is the best judge of what unduly strains his circulation. Those who are accustomed to exercise need not sacrifice their golf, fishing, riding or swimming, altho squash is too strenuous for the majority. Sir John Parkinson has remarked "Modern medical opinion allows children with congenital malformations of the heart to participate in any and every form of activity which they can undertake without distress. It does them good, not harm, and these children will not hurt themselves. Many adults might with advantage follow the same rule in regard to their handicap."

The electrocardiograph does not measure the capacity of the heart for work, and if it deviates from the normal there is no need to order a program of restricted activity, and so create a cardiac invalid.

—PJR

MARGARET HILL, "The Rangers of Chronic Inactivity in the Aged," *The Lancet*, CCLXII:447-449, September 6, 1952.

From birth onwards exercise is necessary to health, and this still holds good in old age. It is far too easy for an old person to get into the habit of spending much time in bed and the rest of the day by the fire instead of making the effort to put on outdoor clothes and get going. Going up and down stairs in moderation is good exercise and especially beneficial in keeping joints flexible. Over-anxiety for the old may be as harmful as neglect. Old people living with their families are often gradually prevented from any activity and this finally wears them down. Many old people can be reduced to invalidism if nothing whatever is expected of them.

PJR

FRANK R. FERLAINE, "The Occupational Hazards of Boxing —Medical Recommendations for Control," *Industrial Medicine and Surgery*, 21:420-423, September, 1952.

After a three years' study by the Medical Advisory Board of the New York State Boxing Commission, the following recommendations were adopted to safeguard the welfare of professional boxers: Gloves and inner paddings must be improved. Old cracked fissured gloves should never be used. Headgears may be necessary. The eight-second compulsory count after a knockdown should be enforced. A new, safer mouthpiece is available. An accident survey committee should be established to carry out a study of accidents in boxing. Sufficient medical personnel should be available at all bouts. A room should be available for medical treatment. The athlete must be in hardened physical condition. An education program on the importance of clean living should be carried out. The 30-day period of suspension after a knockout is a good rule. A well equipped

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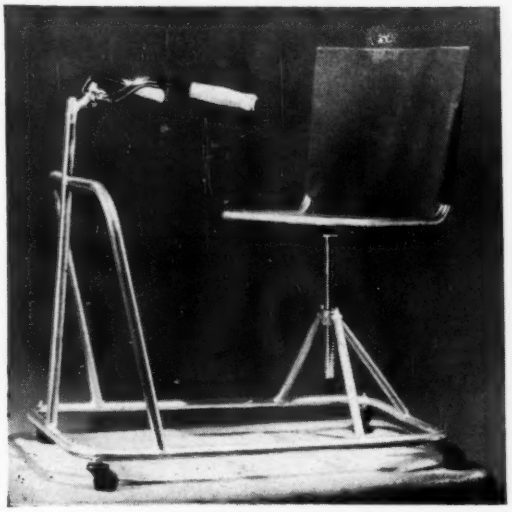

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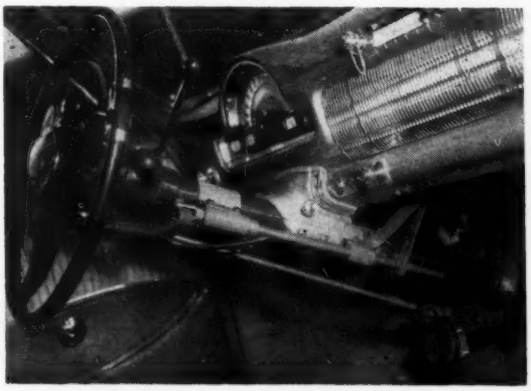

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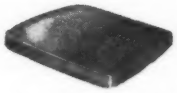

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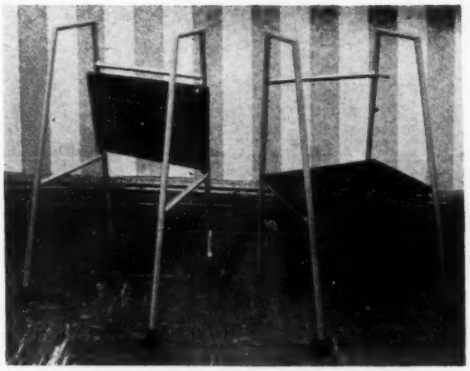

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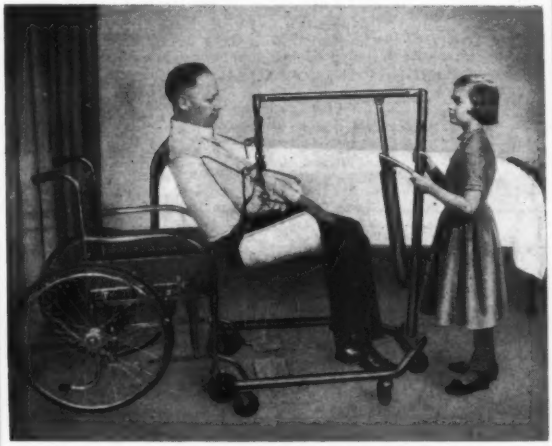

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